Work-home interference
in relation to
work, organizational, and home characteristics

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By three methods we may learn wisdom:
First, by reflection which is noblest;
Second, by imitation which is easiest;
And third by experience which is the bitterest.

Confucius, 551-479 BC

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1

Introduction

1.1 Work-home interaction

During the last decades, perspectives on work have changed in most Western countries. Following industrialization, roles between 'workers' and 'non-workers' were segregated, with work being spatially, temporally, and socially separated from non-work (e.g., family, religion, politics) (Wilensky, 1960). This traditional segregation between work and non-work has been replaced by the more contemporary viewpoint that these two domains are highly interrelated. This changing perspective on the interface between work and non-work is reflected by a change in the composition of the workforce in most Western countries. Whereas in the early days the segregation between 'workers' and 'nonworkers' paralleled gender segregation, nowadays, a large proportion of the active workforce consists of women. For example, in the Netherlands (the country for which this thesis presents its findings), the proportion of women in the working population increased from 37% in 1995 to 42% in 2005 (CBS, 2006). Consequently, the numbers of dual-earner couples and of employed persons with care-giving responsibilities are growing (Gignac, Kelloway, & Gottlieb, 1996). In the Netherlands, the number of dual-earner couples increased from 1,771,000 in 1990 to 2,561,600 in 2000 (CBS, 2006).

Although these developments may have beneficial effects from the perspective of emancipation, they can also have adverse consequences for people's work and private lives. In a national study performed by Bond, Galinsky, and Swanberg (1998), 40% of the working American parents experienced difficulty in combining work and private lives. In the Netherlands, comparable figures were found in a study employing a large heterogeneous sample of the Dutch workforce, which showed that 40% of the employees reported to experience that work interfered with home (in current literature often referred to as work-home interference or work-home conflict) at least occasionally (Geurts, Kompier, Roxburgh, & Houtman, 2003).

Various theoretical frameworks have assumptions about how work and home may influence each other (Geurts & Demerouti, 2003 for an overview). Classical (mainly sociological) theories - developed during the 1950's and the 1960's - present three main hypotheses: i) the segmentation hypothesis (Dubin, 1956; Dubin & Champoux, 1977), implying that work and non-work are two separate domains that are not related to each other, ii) the compensation hypothesis (Wilensky, 1960), stating that individuals will perform activities in the home domain that make up for the deprivations they experience at work (e.g., employees in passive unchallenging jobs who perform active challenging leisure activities such as coaching the local soccer team), and iii) the spillover hypothesis (Wilensky, 1960),

expecting a generalization of alienation from work to non-work (e.g., employees in passive jobs who also perform passive leisure activities such as merely watching television). The first hypothesis has received hardly any support from empirical studies indicating that segregation does not occur naturally but may result from workers' active attempts to prevent work activities from interfering with their private life. The latter two hypotheses have received some evidence (Kabanoff & O'Brien, 1980). Rousseau (1978), for example, found positive associations between the type of work people perform and their non-work activities: persons in unchallenging jobs appeared to have similar routine non-work activities (supportive of the spillover hypothesis). Another study (Mansfield & Evans, 1975) found negative associations between work and non-work: employees with unchallenging jobs seemed to choose challenging non-work activities (supportive of the compensation hypothesis).

Within the field of occupational health psychology field, the work-home interface has traditionally been studied from the role stress perspective. Based on role stress theory, it was assumed that managing multiple roles is difficult and leads to strain. In the 1980's, Greenhaus and Beutell (1985) used role stress theory to define work-home interference as "a form of inter role conflict in which the role pressures from the work and family domains are mutually incompatible in some respect. That is, participation in the work (family) role is made more difficult by virtue of participation in the family (work) role" (p. 77). Since Greenhaus and Beutell (1985) suggested that the type of work-home interference could be based on role characteristics in one domain (e.g., work) affecting time involvement, strain or behavior, which are incompatible with fulfilling the role in the other domain (e.g., home), they distinguished between three types of work-home interference: i) time-based interference, comprising time pressures from one domain/role that make it impossible to meet demands from the other domain/role (e.g., if one works overtime this limits one's participation in family activities), ii) strain-based interference, referring to strain created by participation in one domain/role that makes it difficult to comply with the demands from the other domain/role (e.g., if one is stressed by work this may hamper the fulfillment of care-giving responsibilities), and iii) behavior-based interference, in which expected behavior in one domain/role is incompatible with behavior expected in another domain/role (e.g., if one works in a job requiring a professional attitude – among others, not showing your emotions – this may interfere with a more sensitive attitude favored at home). Most researchers have adopted this definition and classification of three types of work-home interference. Due to difficulties in operationalizing behavior-based interference, however, this form of work-home interference has received little empirical evidence.

Although work-home interference (in the literature also referred to as work-home conflict) was treated mainly as a unidirectional concept during the 1980's, in the 1990's its reciprocal nature was demonstrated (see Gutek, Searle, & Klepa, 1991). Interference can originate in the work domain (work-home interference; e.g., frequently working long hours may interfere with family activities) as well as in the family domain (home-work interference; e.g., if one's child gets ill, this may interfere with work attendance/performance). Empirical research has consistently shown that work-home interference and home-work interference are indeed two distinguishable forms of interference (e.g., Frone, Russell, & Cooper 1992; Netemeyer, Boles, & McMurrian, 1996).

Most remarkably, it was not until the beginning of the 21st century that researchers acknowledged potentially positive effects of combining work and family roles (in current literature referred to as enhancement, positive spillover, enrichment and facilitation (e.g., Frone, 2003; Geurts, Taris, Kompier, Dikkers, Van Hooff, & Kinnunen, 2005; Greenhaus & Powell, 2006; Grzywacz & Marks, 2000; Kirchmeyer, 1992; Ruderman, Ohlott, Panzer & King, 2002). According to Greenhaus and Powell (2006), participation in work and family roles may be beneficial in various ways. First, work and family experiences can have additive effects on well-being: individuals participating in both work and family roles experience greater well-being than those participating in only one role. Second, participation in a work role may have a buffering impact on distress developed in a home role, and vice versa. For example, a person who fails in his/her role as a supervisor may compensate for this failure by falling back on gratification in the role of parent. Third, experiences in one role may produce positive mood and skills on one role that may spillover to the other role (Marks, 1977). Recent studies (Geurts et al., 2005; Grzywacz & Marks, 2000; Kinnunen, Feldt, Geurts & Pulkkinen, 2006) have provided support for the distinction between four types of work-home interaction: i) negative work-home influence (negative WHI, or work-home interference)[1], ii) negative home-work influence (negative HWI, or home-work interference), iii) positive work-home influence (positive WHI), and iv) positive home-work influence (positive HWI).

As Eby, Casper, Lockwood, Bordeaux, and Brinley (2005) conclude in their review of work-home studies performed between 1980 and 2002, there is strong evidence that interference from work (negative WHI) is more prevalent than interference from home (negative HWI) (e.g., Eagle, Miles, & Icenogle, 1997; Frone et al., 1992; Geurts et al., 2005; Gutek et al., 1991; Kinnunen et al., 2006). In the study of Geurts and colleagues (2005) this

[1] In this thesis, 'work-home interference' and 'negative WHI' will be used interchangeably

pattern of prevalence was robust across each of the five samples they included in their study, among men and women, among parents and non-parents, and among full- and part-timers.

In addition, negative WHI (work-home interference) has the most extensive adverse impact on employees' health and well-being (e.g., Bond et al., 1998; Geurts et al., 2005). Three categories of presumed consequences have been shown to be related to negative influences from work to home (Eby et al., 2005): i) physical and mental health outcomes, ii) consequences in the work domain, and iii) consequences in the home domain. In their review, Eby and colleagues (2005) discussed two studies examining the association between negative WHI and physical health outcomes. Schmidt, Colligan and Fitzgerald (1980) found that negative WHI was related to more physical health symptoms. In addition, in a longitudinal study, Frone, Russell and Cooper (1997) found that negative WHI predicted physical health complaints and hypertension four years later.

Several other studies found links between negative WHI and mental health outcomes. Burke and Greenglass (1999) found that work-home interference related to greater psychological distress, whereas Frone (2000) found that negative WHI positively related to anxiety disorders, mood disorders, and substance abuse disorders. Other studies linked negative WHI to greater stress (Kelloway, Gottlieb, & Barham, 1999; Parasurman & Simmers, 2001) and four studies linked it to lower life satisfaction (Bedeian, Burke, & Moffett, 1988; Parasuraman, Greenhaus, & Granrose, 1992; Perrewe, Hochwarter, & Kiewitz, 1999; Rice, Frone, & McFarlin, 1992).

Regarding consequences in the work domain, several studies showed that higher levels of negative WHI were related to lower job satisfaction (Bedeian et al., 1988; Bruck, Allen & Spector, 2002; Burke & Greenglass, 1999; Parasuraman & Simmers, 2001; Perrewe et al., 1999; Rice et al., 1992; Wiley, 1987), higher turnover intentions (Greenhaus, Parasuraman & Collins, 2001; Kelloway et al., 1999), lower perceived career success (Peluchette, 1993), and less career satisfaction (Martins, Eddleston & Veiga, 2002; Parasuraman & Simmers, 2001). With regard to consequences in the home domain, several studies have found that negative WHI was related to lower family satisfaction (Bedeian et al., 1988; Parasuraman et al., 1992).

Since previous studies have shown that negative WHI is the most prevalent type of work-home influence, and because it has the most negative consequences for employees' health and well-being, the current thesis focuses primarily (but not exclusively) on negative WHI (work-home interference). In line with Geurts and colleagues (Geurts et al., 2005; Geurts & Demerouti, 2003), work-home interference is defined as a process whereby one's functioning and behavior in the home domain is negatively influenced by (quantitative and qualitative)

demands from the work domain. The aim of this thesis is to examine primarily negative WHI in relation to work, organizational, and home characteristics.

1.2 Previous research and this thesis' research questions

Presumed 'antecedents'

The multiple presumed antecedents of negative WHI can be divided into three main categories (Byron, 2005; Eby et al., 2005): i) work domain variables (e.g., schedule flexibility, job stress, and support from colleagues), ii) non-work or home domain variables (e.g., family stress, number of children, support from family members), and iii) demographic and individual variables (e.g., gender, income, coping style and skills). In her meta-analytic review of 61 studies, Byron (2005) showed that in general work domain variables have strong relationships with negative WHI; job stress (i.e., role stress and psychological demands) (ρ = .48) and schedule flexibility (ρ = -.30) were most strongly associated with negative influences from the work to the home domain: employees experiencing more job stress and less flexible work schedules reported higher levels of negative WHI.

Furthermore, Byron (2005) found that several home domain variables were related to negative WHI. Among others, employees experiencing lower levels of family support (ρ = -.11), experiencing higher levels of family-related stress (ρ = .30) or conflict (ρ = .35), and having younger children (ρ = -.17) experienced higher levels of negative WHI.

All three demographic and individual variables incorporated in the review by Byron (2005) (gender, income and coping skills) were significantly associated with negative WHI. Male employees tended to report slightly more negative WHI compared to female employees (ρ = -.03), although Byron comments that the differences between the sexes were small. In addition, employees with higher incomes experienced higher levels of negative WHI (ρ = .10), and having better coping skills was associated with lower levels of negative WHI (ρ = -.12).

Although previous studies have given us important insights into individual and contextual factors related to negative WHI, previous research in this area is characterized by three important shortcomings. First, most studies employed cross-sectional designs making it impossible to draw causal inferences about negative WHI and its correlates. For instance, research has consistently shown that the work characteristic 'workload' is one of the strongest and most robust correlates of negative WHI (see Byron, 2005; Eby et al., 2005; Geurts & Demerouti, 2003). However, because of their reliance on cross-sectional data, the causal direction of the relationship between workload and negative WHI remains unclear. Second, insufficient attention has been paid to organizational determinants of negative WHI.

Illustrative of this neglect is that in Eby et al.'s (2005) review, only 3% of the 190 studies included in the review examined the association between organizational variables (e.g., availability of work-home benefits) and negative WHI. Third, previous research on negative WHI has mainly focused on the individual employee as subject of analyses. Possible consequences of negative WHI for family members' perceptions and well-being have received little attention. However, it is not unlikely that employees' stressors and strain experienced or developed in the work domain may transfer to family members in the home domain, and affect their stressors and strain, a phenomenon referred to as 'crossover' (Westman, 2001).

This thesis aims at contributing to current literature on negative WHI by examining i) its relation to workload in a longitudinal design, ii) its relation to yet underemphasized organizational characteristics, and iii) its impact on partners' stressors and strains within marital or co-habiting couples. In the next paragraphs, this thesis' research questions are introduced.

Negative WHI (work-home interference) in relation to workload (research question 1)

As mentioned earlier, previous studies have shown that workload is the most strong and robust correlate of negative WHI: employees who report higher levels of workload also report higher levels of negative WHI (Byron, 2005; Eby et al., 2005; Geurts & Demerouti, 2003). However, most previous studies relied their findings on cross-sectional data, and could therefore not demonstrate the temporal nature of this association. The few longitudinal studies that examined the association between workload and negative WHI over time (Britt & Dawson, 2005; Demerouti, Bakker & Bulters, 2003; Leiter & Durup, 1996; Peeters, de Jonge, Janssen, & Van der Linden, 2004) provided mixed evidence. One study (Peeters et al., 2004) found support for only the traditional assumption that workload precedes negative WHI across time ('normal' causation): cognitive, emotional, and physical demands (indicating qualitative workload) were found to be related to increased levels of negative WHI one year later. In contrast, Leiter and Durup (1996) found evidence for only a reversed causal relationship, that is, negative WHI predicted work overload three months later. Demerouti et al. (2004) provided evidence for a reciprocal relationship between work pressure and negative WHI: work pressure preceded increased levels of negative WHI six and twelve weeks later, and negative WHI acted as a precursor of elevated work pressure six and twelve weeks later. Britt and Dawson (2005) demonstrated cross-sectional relationships between work overload and negative WHI, but no temporal relationships.

Consequently, as yet the causal nature of the relation between workload and negative WHI has not been disentangled and may show 'normal' (i.e., higher workload causes higher levels of negative WHI), 'reversal' (i.e., higher levels of negative WHI cause higher workload), or 'reciprocal' (i.e., workload and negative WHI mutually influence each other over time) associations. This thesis aims to shed more light on the causal nature of the association between workload and negative WHI. Therefore, by employing a longitudinal design (covering a one year period), this thesis addresses the research question*: How are workload and negative WHI temporally related?*

Negative WHI (work-home interference) in relation to organizational characteristics (research question 2)

As yet, empirical studies have paid little attention to organizational characteristics as potential determinants of negative WHI. One important organizational factor that may affect negative WHI is the availability and utilization of work-home arrangements. These arrangements are policies issued by national governments and companies that may enhance employees' balance between work and home. Work-home arrangements can roughly be divided into two categories: i) flexible arrangements, increasing employees' flexibility regarding working time and/or working place (e.g., part time work, and flextime); and ii) care-related arrangements, enabling employees to perform their care-giving responsibilities (e.g., parental leave and subsidized childcare).

Although work-home arrangements may help employees in combining responsibilities at work with those at home, few employees actually seem to use such arrangements (Kinnunen, Mauno, Geurts, & Dikkers, 2005). Thompson, Beauvais, and Lyness (1999) were among the first researchers to emphasize the important role of work-home culture, defined as "the shared assumptions, beliefs, and values regarding the extent to which an organization supports and values the integration of employees' work and private lives" (p. 394). They suggested that such a culture may prevent or facilitate the use of work-home arrangements. And, indeed, a recent review of empirical studies examining the impact of work-home culture on the use of work-home arrangements and negative WHI shows that a more supportive work-home culture is associated with a higher use of work-home arrangements, lower levels of negative WHI, and higher employee well-being (e.g., job satisfaction, organizational commitment) (Kinnunen et al., 2005).

Regarding the conceptualization of work-home culture, Thompson et al. (1999) distinguished among three dimensions: i) supervisor support for the use of work-home

arrangements, ii) negative career consequences associated with the use of work-home arrangements, and iii) organizational time expectations regarding the period of time employees are expected to work. Allen (2001) made a further distinction between support from the direct supervisor and more global family-supportive organization perceptions (i.e., the perceptions employees have regarding the extent to which the global organization is family-supportive). In this thesis, we will argue that a third support component should be distinguished, namely the support employees receive from colleagues regarding the use of work-home arrangements (i.e., colleague support). Here, work-home culture is therefore conceptualized by five dimensions: i) organization's support, ii) supervisor's support, iii) colleagues' support, iv) negative career consequences, and v) organizational time demands. Consequently, this thesis addresses a second research question*: Is work-home culture associated with the use of work-home arrangements and with negative WHI?*

Negative WHI (work-home interference) in relation to home characteristics (research question 3)

Previous research on negative WHI has mainly focused on the individual employee. A relatively new field of research examines the effect of employees' stressors and strain on important others in their surrounding. The "inter-individual dyadic process where stress and strain experienced by an individual generate similar reactions in another individual", is called crossover or transmission (Westman, 2001, p. 718). Crossover associations have frequently been examined among married or cohabiting couples. In her review, Westman (2001) argues that empirical studies investigating crossover are characterized by at least two limitations: i) common stressors shared by partners are often neglected, while they can exert influences on stressors and strain experienced by both partners (i.e., these common stressors can act as third variables shaping crossover associations); and ii) crossover from one partner to the other may not always be direct. Crossover associations can also run indirectly, through certain psychological mechanisms or behavior. For example, a husband's fatigue may lead him to act in a certain 'undermining' way towards his wife, thereby arousing or exhausting his wife (Vinokur & van Ryn, 1993; Westman, 2001). In this thesis, three potential crossover mechanisms (i.e., time-based, strain-based, and empathy-based crossover) will be examined. Accordingly, this thesis addresses a third research question*: Do husbands' work demands and psychological health cross over to their wives' home demands and psychological health?*

The major limitations of previous research on work-home interference and the related research questions and hypotheses of this thesis are summarized in Table 1.1.

Table 1.1. Characteristics of previous research into negative WHI (work-home interference), associated research questions and hypotheses (H) of this thesis

Characteristics of previous research	**Research questions**	**Hypotheses (H)**	**Chapter (Ch)**
1. Little attention for the temporal association between workload and negative WHI	How are workload and negative WHI temporally related?	High levels of time 1 workload are related to increased levels of negative WHI one year later (H1a), and high levels of time 1 negative WHI precede higher reports of workload one year later (H1b)	2
2. Few studies examining the association between negative WHI and organizational characteristics	Is work-home culture related to the use of work-home arrangements and negative WHI?	More supportive and less hindering work-home cultures i) are reported by women (H2a, Ch. 4), parents (H2b, Ch. 4), and workers in a public organization (H2c, Ch. 4) when compared with men, employees without children, and workers in private organizations, ii) are related to a higher use of work-home arrangements (H3, Ch. 3 & 4), and iii) are related to lower levels of negative WHI (H4a, Ch. 3 & 4), lower levels of negative HWI (H4b, Ch. 4), higher levels of positive WHI (H4c, Ch. 4), and higher levels of positive HWI (H4d, Ch. 4)	3 & 4
3. Conceptualization of negative WHI as an individual phenomenon; little attention for potential crossover between partners	Do husbands' work demands and psychological health cross over to their wives' home demands and psychological health?	Husbands' work demands and psychological health cross over to their wives' home demands and psychological health through time-based (H5a), strain-based (H5b), and empathy-based (H5c) mechanisms	5

1.3 Thesis outline

The three research questions of this thesis are examined in chapters 2 to 5.

In Chapter 2, the temporal association between quantitative workload and negative WHI is examined during a 1-year period. Based on a systematic literature search, we identified four studies using a longitudinal design to examine the relationship between workload and negative WHI over time (Britt & Dawson, 2005; Demerouti, Bakker & Bulters, 2003; Leiter & Durup, 1996; Peeters, de Jonge, Janssen, & Van der Linden, 2004). However, as we noted in section 1.2, these studies provided mixed results on the causality between workload and negative WHI. One possible explanation for this finding is that these studies have disregarded changes occurring in-between the waves. Therefore, we examined the temporal association between workload and negative WHI in a two-wave full-panel study (covering a period of 1 year) comprising 828 Dutch police officers, while controlling for the influence of job and family changes employees experienced in-between measurements. We hypothesize that relatively high levels of workload (time 1) are related to increased levels of negative WHI one year later (*Hypothesis 1a*: 'normal' causation). A second hypothesis is that high levels of negative WHI (time 1) may precede higher reports of workload one year later (*Hypothesis 1b*: 'reversed' causation). In case both hypotheses are supported, this would indicate that the nature of the causal relationship between workload and negative WHI is reciprocal.

In Chapter 3, the associations among work-home (WH) culture, the utilization of six work-home (WH) arrangements, and negative WHI are examined in a sample of 638 employees from a Dutch financial consultancy firm. We addressed these associations by i) developing a measure and typology of WH cultures, ii) examining whether the actual utilization of WH arrangements differs for various types of WH cultures, and iii) by determining whether various types of WH culture and the utilization of WH arrangements are related to negative WHI. In this study, the five dimensions characterizing WH culture mentioned in section 1.2 (organization's, supervisor's, and colleagues' support, negative career consequences, and organizational time demands), are reduced to two central dimensions, support (covering organization's, supervisor's, and colleagues' support) and hindrance (comprising negative career consequences and organizational time demands). Consequently, these two dimensions are combined to develop a typology distinguishing between four types of WH culture, which are associated with the actual utilization of six WH arrangements and negative WHI for relevant subgroups of employees (i.e., men vs. women, and parents vs. non-parents).

In Chapter 4, the nature of WH culture and its associations with i) demographic and organizational characteristics, ii) the use of four WH arrangements, and iii) the four types of work-home interaction (i.e., negative WHI/HWI and positive WHI/HWI) are examined among 1,179 Dutch employees drawn from one public and two private organizations. This study partially replicates the previous study described in Chapter 3 by i) testing the proposed 2-factor structure of the WH culture measures (i.e., support and hindrance) against several competing factor models, and ii) examining the associations of WH culture support and hindrance with demographic characteristics (gender and parental status), the use of four specific WH arrangements and negative WHI. The present study extends the previous study (Chapter 3) by i) testing the robustness of the 2-factor structure of WH culture across multiple samples drawn from three different types of organizations, ii) examining the associations of WH culture with organizational characteristics (i.e., the three samples), and with all four components of the work-home interface (negative and positive WHI/HWI).

When combining the hypotheses of the two studies described in Chapter 3 and 4, we expect that more supportive and less hindering WH cultures i) are reported by women (*Hypothesis 2a*, Chapter 4), parents (*Hypothesis 2b*, Chapter 4), and workers in a public organization (*Hypothesis 2c*, Chapter 4) compared with men, employees without children and workers in private organizations, ii) are related to a higher use of WH arrangements (*Hypothesis 3*, Chapter 3 and 4), and iii) are related to lower levels of negative WHI (*Hypothesis 4a*, Chapter 3 and 4), lower levels of negative HWI (*Hypothesis 4b*, Chapter 4), higher levels of positive WHI (*Hypothesis 4c*, Chapter 4), and higher levels of positive HWI (*Hypothesis 4d*, Chapter 4)

In Chapter 5, we examine three possible mechanisms that may account for crossover of husbands' work demands and psychological health to their wives' home demands and psychological health. The first is labeled time-based crossover; we propose that husbands' time demands at work affect their wives' home demands because of husbands' reduced share in domestic chores (*Hypothesis 5a*). The second proposed mechanism is labeled strain-based crossover; we assume that husbands' psychological health affects their wives' home demands due to strain that prevents husbands from contributing to domestic tasks (*Hypothesis 5b*). The third mechanism studied is referred to as empathy-based crossover; based on this principle, we expect that wives' psychological health covaries with their husbands' psychological health due to an empathetic – or sympathetic – reaction of the wives (*Hypothesis 5c*). In contrast with previous studies in this field, we study these crossover processes among three different

types of couples (i.e., male breadwinners, female (small) part-timers, and dual-earners). In total, 253 Dutch couples were included in this study.

In Chapter 6 (Discussion), conclusions are drawn regarding the three research questions and the related hypotheses tested in Chapter 2 to 5. In addition, both practical and theoretical implications are presented.

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2

Does workload cause work-home interference or is it the other way around?

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Abstract

The present study was designed to investigate the causal relationships between work-home interference (WH interference) and one of its strongest correlates, quantitative workload. Two-phase longitudinal data (with a one-year time lag) were gathered from 828 Dutch police officers. Drawing on the Effort-Recovery Model, and in line with the current work-home interference literature, we hypothesized that relatively high workload precedes increased levels of WH interference one year later ('normal' causation). In addition, we tested the alternative hypothesis that relatively high levels of WH interference predict increased workload one year later ('reversed' causation). Results of hierarchical regression analyses showed that workload and work-home interference have causal and reversed causal relationships across time, supporting both hypotheses (although effect sizes are limited). Accordingly, these findings suggest that workload is not merely an antecedent of work-home interference but also a potential consequence.

2.1 Introduction

Many employees experience conflicts in combining work with domestic responsibilities. According to the vast majority of empirical studies well reviewed by Geurts & Demerouti (2003), work demands interfere with people's private life (i.e., work-home interference, negative WHI) more often than the other way around (i.e., home demands interfering with work life, home-work interference, negative HWI). Considering the higher prevalence of interference from work, in this study we focused exclusively on work-home (WH) interference.

Research on potential antecedents of work-home interference has been extensive. Consistent with the current literature, reviewed by Byron (2005) and Eby, Casper, Lockwood, Bordeaux and Brinley (2005), three main categories of potential antecedents of WH interference can be distinguished: (i) work domain variables including, for instance, hours spent at work, work support and work (over)load, (ii) nonwork domain variables such as hours spent in nonwork, family support, and family stress, and (iii) demographic and individual variables including coping style and skills. In the current study, we concentrate on one of the strongest correlates of work-home interference within the work domain, that is, quantitative workload (referring to the amount of work or work pressure).

Although quantitative workload has consistently been found to be a robust correlate of work-home interference, the causal nature of this association remains unclear. In the occupational health psychology literature, workload is traditionally considered a job stressor that precedes the experience of work-home interference. However, as most of the supportive evidence comes from cross-sectional studies, it is impossible to draw inferences about whether workload should be considered merely a cause or a consequence of work-home interference. To demonstrate such a causal relationship, a longitudinal study design is required.

Based on a systematic literature search (PsychInfo data base till September 2006), we identified four studies using a longitudinal research design to examine the relationship between workload and work-home interference over time (Britt & Dawson, 2005; Demerouti, Bakker & Bulters, 2004; Leiter & Durup, 1996; Peeters, De Jonge, Janssen, & Van der Linden, 2004, see Table 2.1 for background information of each study). In all four studies a complete panel design was employed whereby workload and work-home interference were measured each at least twice (in Demerouti et al.'s (2004) study a third wave was included). The lengths of time lags between the waves were six weeks (Demerouti et al., 2004), three months (Britt & Dawson, 2005; Demerouti et al., 2004; Leiter & Durup, 1996) and one year

(Peeters et al., 2004).

Table 2.1. Background information on four previous longitudinal studies examining the association between workload and work-home interference

Study	**Sample**	**Measurement of workload**	**Measurement of WH interference**
Britt & Dawson (2005)	493 U.S. soldiers stationed in Europe	objective aspects (e.g., work hours) + role overload (3 items)[a]	5 items (Netemeyer, Boles & McMurrian, 1996)
Demerouti et al. (2004)	335 employees of an employment agency	work pressure (3 items[b,c])	3 items (Geurts et al., 2005)
Leiter & Durup (1996)	151 hospital-based health care professionals	work overload (4 items[d, e])	4 items (Kopelman, Greenhaus & Connolly, 1983)
Peeters et al. (2004)	383 health care employees	cognitive demands (8 items[f)] emotional demands (12 items[g,h]), physical demands (7 items[i])	7 items (De Jonge, Peeters Hamers, Van Vegchel & Van der Linden, 2003)

Note.

[a] Camman, Fichman, Jenkins & Klesh (1983); [b] Furda (1995); [c] Karasek & Theorell (1990); [d] Leiter (1988); [e] Kahn, Wolfe, Quinn, Snoek & Rosenthal (1964); [f] De Jonge, Landeweerd & Nijhuis (1995); [g] Van Veldhoven, De Jonge, Broersen, Kompier & Meijman (2002); [h] De Jonge, Mulder & Nijhuis (1999); [i] De Jonge & Nijhuis (1995)

Regarding the results of these four longitudinal studies, one study (Peeters et al., 2004) found support for only the traditional assumption that workload precedes work-home interference across time ('normal' causation). More specifically, cognitive, emotional, and physical demands (indicating qualitative workload) were found to be related to increased levels of work-home interference one year later. In contrast, Leiter and Durup (1996) found evidence for only a reversed causal relationship, that is, work-home interference predicted work overload three months later. Demerouti et al. (2004) provided evidence for a reciprocal relationship between work pressure and work-home interference: work pressure preceded increased levels of work-home interference six and twelve weeks later, and work-home interference acted as a precursor of elevated work pressure six and twelve weeks later. Britt and Dawson (2005) demonstrated cross-sectional relationships between work overload and work-home interference, but no temporal relationships.

In sum, previous longitudinal studies have provided mixed results on the causality between workload and work-home interference. Of course, these mixed results might be explained by large differences in the samples and measurements used (see Table 2.1) as well as in the employed time lags. However, another explanation reflecting a serious limitation in the previously discussed longitudinal studies may be the disregard of changes that may have occurred in-between the waves. It is not unlikely in longitudinal study designs that in-between waves changes occur in the work and/or family domain that may affect later reports of workload and/or work-home interference. Therefore, we believe that in longitudinal designs controlling for such changes is imperative in order to obtain unbiased estimates for the 'natural' temporal relationships.

The present study

The aim of the current study is to disentangle the causal relationship between quantitative workload and work-home interference during a 1-year period, thereby taking into account changes in the work and/or family domain during the observation period. The Effort-Recovery (E-R) model (Meijman & Mulder, 1998) provides the theoretical framework to understand the mechanisms underlying the causal relationship of workload with work-home interference. According to this model exposure to workload requires effort which is unavoidably associated with the development of short-term psycho-physiological reactions (e.g., accelerated heart rate and acute fatigue). Under optimal circumstances, these normal 'load reactions' will disappear when the exposure to workload ceases (i.e., recovery, Geurts & Sonnentag, 2006). However, these normal reactions will develop into negative load reactions (e.g., strain, sustained fatigue) in a work situation that unremittingly poses high demands on the individual. Particularly in a situation of continuous or recurrent exposure to high workload, negative load reactions are likely to develop, to spill over and to interfere with functioning in the home domain (Geurts, Taris, Kompier, Dikkers, Van Hooff & Kinnunen, 2005). Drawing on this theoretical perspective, Geurts et al. (2005) defined work-home interference as 'a process in which a worker's functioning at home is influenced by negative load reactions that have built up at work' (p. 322). Indeed, there is broad empirical evidence that negative load reactions built up in the course of a demanding or stressful work day (indicating high workload) manifest themselves after work in subjective reports of fatigue, recovery complaints, and low sleep quality (indicating work-home interference), and even in physiological indicators such as delayed cardiovascular recovery (Geurts & Sonnentag, 2006).

It is also conceivable, however, that work-home interference acts as a precursor of

workload. Two mechanisms may explain such as reversed causal relationship (De Lange, Taris, Kompier, Houtman & Bongers, 2004; Höge & Büssing, 2004; Spector, Zapf, Chen & Frese, 2000). A first plausible mechanism is that the more individuals' functioning at home is hampered by negative load reactions built up at work, the more they will perceive their work demands as high or stressful (the 'gloomy perception' mechanism). A second and related mechanism is that due to the spillover of negative load reactions, individuals actually face higher work demands. This higher workload may be created by individuals themselves, for instance, by behaving negatively at work (e.g., towards colleagues or clients eliciting negative reactions or conflict) and/or by working less efficiently (e.g., tired workers are more likely to make mistakes), but may also be created by others at work (e.g., when a supervisor assigns less appealing tasks). The notion that individuals who suffer from strain may unintentionally create or elicit additional job stressors is known as the stressor creation-mechanism.

Research question and hypotheses

In this study, we examine the temporal relationship between quantitative workload and work-home interference by employing a two-wave full-panel design with a one-year time lag. In a full-panel design the central research variables are measured on all measurement occasions (De Lange, Taris, Kompier, Houtman & Bongers, 2003; Zapf, Dormann & Frese, 1996). In our study workload and work-home interference were each measured on time 1 as well as one year later (time 2). Drawing on the E-R model (Meijman & Mulder, 1998), we hypothesize that relatively high levels of workload (time 1) are related to increased levels of work-home interference one year later [Hypothesis 1: 'normal' causation]. A second hypothesis is that high levels of work-home interference (time 1) may precede higher reports of workload one year later [Hypothesis 2: 'reversed' causation] through either one or both mechanisms discussed above. Evidence for both hypotheses would indicate that the nature of the causal relationship between workload and work-home interference is reciprocal.

2.2 Method

Sample

The data used in this study were originally collected as part of a two-phase longitudinal survey on the etiology of burnout among employees of the Dutch police force. At time 1 (1999), a random sample of 10,000 employees was drawn from the total population of police personnel in The Netherlands. Of this number, 5,277 police officers (response rate of 53%) completed a questionnaire including questions about work characteristics, work-home

interference, and health. Of these respondents, 2,732 (response rate of 52%) agreed to participate in the follow-up study one year later (2000). The police officers who reported a (very) high level of burnout complaints at time 1 (measured with the Utrecht Burnout Scale (UBOS); Schaufeli & Van Dierendonck, 2000) were excluded from further participation in the study as those with a history of burnout in the first phase could not offer insight into the incidence and etiology of burnout. To determine whether the level of burnout complaints was (very) high, a comparison was made with an independent representative sample of the Dutch work force (Schaufeli & Van Dierendonck, 2000), and the police officers with a 75th percentile score or higher on all three burnout components (i.e., ≥ 2.20 on exhaustion, ≥ 2.00 on distance, and ≥ 3.66 on competence) were excluded. This procedure resulted in a sample of 1,667 participants who did not report serious burnout symptoms on wave 1 of the study (for additional information on the 1999 study, see Houtman, Bosch, Jettinghoff & Van den Berg, 2000).

From this sample of 1,667 participants, a random sample of 1,000 employees was contacted for the follow-up study, of which 828 (response rate of 83%) completed a follow-up questionnaire. The final sample consisted, therefore, of 828 police officers (85% male and 15% female) with a mean age at time 1 of 42.1 years (*SD* = 7.8 years). The average number of years working in the present job was 10.3 years (*SD* = 8.4 years) at time 1. Of these respondents, 83% were employed in executive police work (i.e., 46% base police force, 13% research squad, 4% foreign police, 3% traffic police, and 17% other), and 17% were in administrative or technical support services.

Measures

Workload was measured by a subscale from the NOVA-WEBA (NIPG Onderzoeks-Vragenlijst Arbeidsinhoud-WElzijn Bij de Arbeid; Dhondt & Houtman, 1992), a Dutch questionnaire developed to identify risk factors for work stress. The psychometric qualities (i.e., reliability, validity and factor structure) of this instrument have been tested with satisfactory results (Dhondt & Houtman, 1997). Workload in the NOVA-WEBA consists of 5 items based on the psychological demands scale of the Job Content Questionnaire (JCQ; Karasek, Brisson, Kawakami, Houtman, Bongers & Amick, 1998), and indicates quantitative job demands. Exemplary items are: “Do you have to work very fast?”, and “Do you have a lot of work to do?”. Cronbach alpha was .74 at both waves. Each question could be answered by ‘no’ (0) or ‘yes’ (1), with higher scores indicating higher levels of workload.

Work-home interference was measured with 8 items, originating from the Survey Work-

home Interaction NijmeGen (SWING, Geurts et al., 2005). The psychometric qualities (i.e., reliability, validity and factor structure) of the SWING have been tested with satisfactory results (Geurts et al., 2005). The scale work-home interference measures the extent to which workers believe their functioning at home is hampered by work demands. Exemplary items are: "How often does it happen that your work takes up time that you would have liked to spend with your spouse/family/friends?", and "How often does it happen that your work obligations make it difficult for you to feel relaxed at home?". Respondents answered on a four-point scale (0 = (almost) never, 1 = sometimes, 2 = often, and 3 = always), with higher score reflecting higher levels of WH interference. Cronbach alphas were .80 (time 1) and .82 (time 2).

Covariates. In order to ensure that the statistical association between workload and WH interference was not due to third variables, the impact of two demographic variables was controlled: gender (0 = male, 1 = female) and age (in years).

Reported job and family changes. In the follow-up questionnaire (time 2), the respondents were asked whether they changed job type, police force, and whether their family circumstances had changed after having participated in wave 1 of this study. The response categories were 'yes' and 'no'. If the participants responded positively ('yes') they were asked to specify their current job type, police force, or family situation. With respect to the change in their job position, the participants were asked to indicate of six possible reasons, the most important reason for the change, for instance, better career opportunities, more challenging tasks, or health reasons. With respect to the family situation, the participants could indicate whether their situation had changed in terms of marriage/cohabiting, divorce, birth of child, moving in with parents, child(ren) leaving house, or spouse entering or leaving labor market.

Analyses

Preliminary analyses. Before examining the temporal relationships between workload and work-home interference we calculated descriptive statistics (i.e., means, standard deviations, and correlations) for the total sample (N = 828) and for four subgroups of participants: those who reported after the first wave (1) no job or family changes at all, (2) only (one or more) job changes, (3) only (one or more) family changes, and (4) (one or more) changes in both the work and the family domain.

Additionally, we determined whether employees reporting changes in-between the waves experienced higher or lower levels of workload and/or work-home interference at the second

measurement, as compared to those who did not report any changes. Therefore, we compared the mean workload scores of the four subgroups on time 1 and time 2, and we compared the work-home interference scores on time 1 and time 2 by employing GLM (General Linear Model) repeated measures. We did not have specific hypotheses regarding the impact of job and/or family changes on workload and work-home interference because this impact could be positive as well as negative (e.g., child(ren) leaving the house may have a positive as well as a negative impact on work-home interference).

Main analyses. Hypothesis 1 (workload precedes increased levels of work-home interference one year later) was tested in a first series of hierarchical regression analyses. Work-home interference (time 2) was entered as the dependent variable. In Step 1, work-home interference (time 1) and the covariates (gender and age) served as independent (control) variables. In Step 2, workload (time 1), job changes and family changes were added. In Step 3, interaction effects between workload (time 1) and changes in-between waves were added, more specifically between workload (time 1) and job changes, and between workload (time 1) and family changes.

Hypothesis 2 (work-home interference precedes increased levels of workload one year later) was tested in the second series of regression analyses in which workload (time 2) was entered as dependent variable. In Step 1, workload (time 1) and the covariates (gender and age) were entered as the independent (control) variables. In Step 2, work-home interference (time 1), job changes and family changes were added. In Step 3, interaction effects between work-home interference (time 1) and job changes, and between work-home interference (time 1) and family changes were added to the independents.

2.3 Results

Preliminary analyses

Means, standard deviations, and correlations of the key research variables in the total sample (N = 828) and in the four subgroups are presented in Table 2.2. Of the 816 participants who answered the 'change in-between waves' question, (i) 519 (63,6%) did not report any job or family changes; (ii) 126 participants (15.4%) reported only (one or more) job changes (main reported reasons being better career opportunities (39%) and more challenging tasks (34%); (iii) 140 police officers (17.2%) reported only (one or more) family changes (frequently reported changes were child(ren) leaving house (26%), birth of child (24%), and spouse entering or leaving labor market (21%); and (iv) thirty one respondents (3.8%) reported (one or more) changes in both the work and the family home domain (main changes involved

better career opportunities (52%) and child(ren) leaving the house (35%).

In the total sample (N = 828) we observed, aside from high autocorrelations of workload (r = .63, p<.001) and work-home interference (r = .65, p<.001) and high cross-sectional correlations between workload and work-home interference (r = .39, p<.001 on time 1, and r = .42, p<.001 on time 2), significant longitudinal correlations between workload and work-home interference in the expected direction. High levels of workload (time 1) were related to high levels of work-home interference (time 2), r = 0.35, p < .001. In addition, high levels of work-home interference (time 1) were related to high levels of workload (time 2), r = 0.38, p < .001. Comparable correlations were found in three out of four subgroups (groups 1-3). In the subgroup comprised of participants who reported both job and family changes (subgroup 4) no significant across-time associations were found between workload and work-home interference.

In addition, participants' mean scores on the key variables were almost identical across the two measurements. In the total sample the time 1 workload score (M = 0.56) equaled the time 2 workload score (M = 0.55), and similar pictures emerged in each of the four subgroups. Scores on work-home interference were comparable to the reference score as described by Geurts et al. (2005): In a sample comprised of data obtained from five Dutch samples (N = 1,857), Geurts et al. (2005) found a work-home interference mean score of 0.86 (SD = .48), which was similar to the work-home interference scores observed in the current sample (N = 828): 0.78 (time 1) and 0.79 (time 2).

Subsequently, by performing GLM repeated measures we determined whether workload developed differently between the two waves for the four subgroups. The results revealed that the difference between time 1 workload and time 2 workload was not significantly different for the four subgroups (F(3, 810) = 0.03, *ns*). A similar analysis was performed to examine whether work-home interference developed differently for the four subgroups. Again, the four subgroups did not differ significantly from each other regarding the development of work-home interference from time 1 to time 2 (F(3, 805) = 1.99, *ns*). These results indicate that as far as job and/or family changes had occurred in-between the waves and may have affected the time 2 measures, these effects did not differ as a function of subgroup. We will, therefore, perform the causal analyses on workload and work-home interference on the total research sample (N = 828).

Table 2.2. Means, standard deviations (SD), and correlations of key variables in total sample (N = 828), and four subgroups

				Variable			
	Range	Mean	SD	1	2	3	4
Total sample (*N* = 828)							
1. Workload (time 1)	0-1	0.56	0.33	1.00			
2. Workload (time 2)	0-1	0.55	0.34	0.63**	1.00		
3. Work-home interference (time 1)	0-3	0.78	0.39	0.39**	0.38**	1.00	
4. Work-home interference (time 2)	0-3	0.79	0.41	0.35**	0.42**	0.65**	1.00
Group 1 (no changes, *N* = 519)							
1. Workload (time 1)	0-1	0.55	0.34	1.00			
2. Workload (time 2)	0-1	0.55	0.34	0.67**	1.00		
3. Work-home interference (time 1)	0-3	0.78	0.38	0.40**	0.41**	1.00	
4. Work-home interference (time 2)	0-3	0.80	0.41	0.37**	0.46**	0.69**	1.00
Group 2 (job changes, *N* = 126)							
1. Workload (time 1)	0-1	0.59	0.35	1.00			
2. Workload (time 2)	0-1	0.55	0.35	0.54**	1.00		
3. Work-home interference (time 1)	0-3	0.78	0.39	0.46**	0.38**	1.00	
4. Work-home interference (time 2)	0-3	0.80	0.40	0.35**	0.46**	0.47**	1.00
Group 3 (family changes, *N* = 140)							
1. Workload (time 1)	0-1	0.61	0.31	1.00			
2. Workload (time 2)	0-1	0.59	0.32	0.62**	1.00		
3. Work-home interference (time 1)	0-3	0.80	0.40	0.34**	0.29**	1.00	
4. Work-home interference (time 2)	0-3	0.76	0.41	0.32**	0.23*	0.68**	1.00
Group 4 (job and family changes, *N* = 31)							
1. Workload (time 1)	0-1	0.50	0.28	1.00			
2. Workload (time 2)	0-1	0.43	0.30	0.07	1.00		
3. Work-home interference (time 1)	0-3	0.80	0.35	0.25	0.19	1.00	
4. Work-home interference (time 2)	0-3	0.78	0.29	0.05	0.32	0.52*	1.00

Note. * = p<0.01; ** = p<0.001

Main analyses

The results of the first series of hierarchical regression analyses examining the relationship between workload (time 1) and work-home interference (time 2) are presented in Table 2.3. Figure 2.1 summarizes the findings of these analyses. Table 2.3 shows (see Step 2) that workload (time 1) was associated with increased levels of work-home interference one year later ($\beta = 0.12$, $p < .001$; *Hypothesis 1* supported) beyond work-home interference at time 1 ($\beta = 0.60$), and after controlling for participants' gender and age. Thus, participants reporting

higher workload (time 1) experienced increased levels of work-home interference one year later. The results further show that participants who reported (one or more) family changes after the first wave experienced lower levels of work-home interference one year later (β = -0.05, $p < .05$). Job changes reported in-between the waves were not related to work-home interference one year later (β = -0.01, *ns*). Interaction effects between workload (time 1), on the one hand, and job changes and family changes on the other, were not significantly related to work-home interference one year later (βs were -0.03 and -0.02, *ns*, respectively).

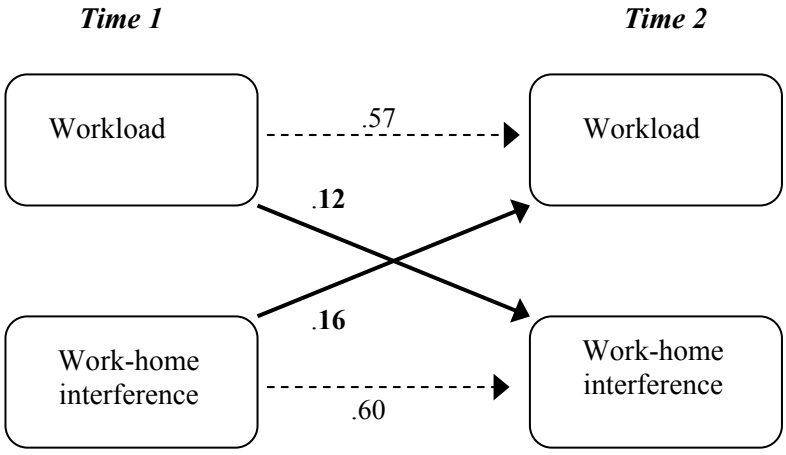

Figure 2.1. Standardized beta-coefficients (all significant at p < .001) reflecting across-time relationships between workload and work-home interference

The results of the second series of regression analyses testing the relationship between work-home interference (time 1) and workload (time) are presented in Table 2.4 (see also Figure 2.1). Step 2 shows that work-home interference (time 1) was associated with increased levels of workload one year later (β = 0.16, $p < .001$; *Hypothesis 2* supported) beyond workload (time 1, β = 0.57), and after controlling for participants' gender and age. Thus, participants reporting higher levels of work-home interference (time 1) experienced increased levels of workload one year later. Job and family changes were unrelated to time 2 workload (respectively, β = -0.04, *ns*, and β = -0.01, *ns*). In addition, the interaction effects between work-home interference (time 1) on the one hand, and job changes and family changes, on the other, were not significantly related to time 2 workload (βs were -0.03, *ns* and -0.07, *ns*, respectively).

Table 2.3. Results of hierarchical regression analyses examining relationship between time 1 workload and time 2 work-home interference in total sample (N = 828)

Variables	*B*	*p*	*F*	*p*	R^2
Step 1			202.36	0.00	0.42
Gender[&]	*-0.04*	*0.23*			
Age	*-0.05*	*0.06*			
WH interference time 1	***0.65***	*0.00*			
Step 2			106.68	0.00	0.43
Gender[&]	-0.03	0.35			
Age	**-0.06**	0.03			
WH interference (time 1)	**0.60**	0.00			
Workload (time 1)	***0.12***	*0.00*			
Job change	*-0.01*	*0.76*			
Family change	***-0.05***	*0.04*			
Step 3			80.19	0.00	0.43
Gender[&]	-0.03	0.33			
Age	**-0.06**	0.03			
WH interference (time 1)	**0.60**	0.00			
Workload (time 1)	0.10	0.10			
Job change	-0.01	0.80			
Family change	**-0.06**	0.04			
*Workload (time 1) * job change*	*-0.03*	*0.21*			
*Workload (time 1) * family change*	*-0.02*	*0.80*			

Note. Significant standardized beta-coefficients are printed in bold; In each step, newly added independents are printed in *Italic*

[&]: 0 = male, 1 = female

Table 2.4. Results of hierarchical regression analyses examining relationship between time 1 work-home interference and time 2 workload in total sample (N = 828)

Variables	*B*	*p*	*F*	*p*	R^2
Step 1			176.27	0.00	0.39
Gender[&]	*0.00*	*0.90*			
Age	*0.00*	*0.93*			
Workload (time 1)	***0.63***	*0.00*			
Step 2			96.34	0.00	0.41
Gender[&]	0.01	0.63			
Age	0.01	0.82			
Workload (time 1)	**0.57**	0.00			
WH interference (time 1)	***0.16***	*0.00*			
Job change	*-0.04*	*0.12*			
Family change	*-0.01*	*0.73*			
Step 3			72.55	0.00	0.41
Gender[&]	0.01	0.63			
Age	0.01	0.74			
Workload (time 1)	**0.56**	0.00			
WH interference (time 1)	0.10	0.08			
Job change	-0.04	0.13			
Family change	-0.01	0.78			
*WH interference (time 1) * job change*	*-0.03*	*0.35*			
*WH interference (time 1) * family change*	*-0.07*	*0.24*			

Note. Significant standardized beta-coefficients are printed in bold; In each step, newly added independents are printed in *Italic*

[&]: 0 = male, 1 = female

2.4 Discussion

The current study was designed to examine the temporal relationships between workload and work-home interference. We used a two-wave full-panel design with a one year time lag. In studying these across-time relationships, we controlled for changes in the work and family domain that may have occurred in-between the two waves, thus addressing an important limitation of previous longitudinal studies in this field. Based on assumptions from the E-R model (Meijman & Mulder, 1998), we expected that workload would act as a precursor of work-home interference one year later ('normal' causation). We also formulated the alternative (but not per se competing) hypothesis that work-home interference could precede increased levels of workload across time ('reversed' causation). The results revealed that

workload and work-home interference have normal and reversed causal relationships across time, supporting both hypotheses. These findings suggest that workload is not merely an antecedent of work-home interference but also a potential consequence. These results underscore the importance of distinguishing between different types of causality in the relationships between workload and work-home interference, and indicate that findings obtained in previous cross-sectional research cannot unequivocally be interpreted as reflecting the effect of workload on work-home interference only.

The effect of workload on elevated work-home interference across time is in line with previous studies (Demerouti et al., 2004; Peeters et al., 2004; but not in line with Britt & Dawson, 2005, and Leiter & Durup, 1996) and corresponds with assumptions of the E-R model (Meijman & Mulder, 1998): due to high workload negative load reactions are likely to develop and to spillover to the home domain. We also found that family changes in-between the waves were significantly (albeit weakly) associated with decreased levels of work-home interference one year later. Considering the most frequently reported family change (i.e., child(ren) leaving the house), this finding may imply that interference from work is lower once children have left the house.

The effect of work-home interference on increased workload across time is in line with previous studies of Demerouti et al. (2004) and Leiter and Durup (1996; but not of Peeters et al., 2004) and may be explained by two theoretical mechanisms (De Lange et al., 2004; Höge & Büssing, 2004; Spector et al., 2000). Individuals whose functioning at home is hampered by load effects built up at work (work-home interference) may (i) perceive their workload as higher or more stressful (the 'gloomy perception' mechanism) and/or (ii) create higher workload because of, for instance, negative behavior towards others at work and/or lower job performance (the 'stress creation' mechanism).

Strengths and limitations

We believe that our study contributes to previous research in the area of work-home interference. First, and in contrast with the abundance of cross-sectional studies in this field, we examined the causal direction in the relationship between work-home interference and one of its strongest correlates, quantitative workload in a longitudinal design. Our main finding is that workload and work-home interference influence each other reciprocally over a one-year period, and that their relationship reflects a dynamic process of mutual influence. This finding implies that work-home interference should no longer be construed as either a stressor, or a mediator, or a stress-reaction/strain index in the stressor-strain chain (cf. Geurts, Kompier,

Roxburgh & Houtman, 2003), but that work-home interference may function both as a stressor for workload as well as a stress-reaction to workload. Theoretical models on work-home interference should, therefore, integrate various types of relationships between work-home interference, stressors and strain indices.

Second, and in contrast with the few previous longitudinal studies in this field, we took into account actual job and family changes that had occurred in-between the two waves that may have been responsible for changed levels of workload and WH interference one year later. We showed that job and family changes did not have a substantial effect on workload and WH interference one year later, nor on the causal relationships between workload and work-home interference. The only exception was that family changes had a slight favorable impact on WH interference.

Notwithstanding these strengths, some limitations of this study should be discussed as well. First, the lagged relationships between workload and WH interference (normal: $\beta = .12$; reversed: $\beta = .16$) did not seem very strong at first sight. However, we must realize that the largest proportion of the variance in time 2 workload and time 2 WH interference was already accounted for by the same indicator one year earlier (βs were .57 and .60, respectively), indicating that these variables were rather stable across time. Consequently, the proportion of variance left to be explained that may be linked to changed levels of workload and WH interference was only small. Also in studies that examined the causal relationships between stressors and strain, the βs reported were, on the average, only .12 (Dormann & Zapf, 2002). Therefore, the relevance of the causal associations found in our study should not be underestimated (Semmer, Zapf & Greif, 1996; Taris, 2000).

Second, our study employed a two-wave full-panel design with a one year time lag, but this time lag may not have been appropriate for investigating causality in the relationship between workload and work-home interference. However, a recent review of 45 longitudinal studies (De Lange et al., 2003) that addressed the relationships between work characteristics and employee health revealed that in high-quality longitudinal studies (i.e., with a full-panel design and a theory-guided choice for a time lag) the most consistent effects were found for a one-year period. Nevertheless we may not exclude the possibility that our one-year time lag deviates from the underlying causal interval which may have resulted in underestimations of the true strength of the causal relationships (Taris, 2000).

A final limitation concerns the nature of our sample: a rather homogeneous sample consisting of only police officers. Moreover, participants who reported a (very) high burnout

level in the first phase were excluded from the follow-up study. As exhaustion is generally found to be related to work-home interference and workload (cf. De Lange et al., 2004), this may have induced a restriction of the range in the key variables. Theoretically, this restriction of range-effect should mean that effects are estimated conservatively, implying possible underestimations of the true associations between workload and work-home interference.

Future directions and practical implications

The following recommendations for future longitudinal research may be derived from this study. First, future studies addressing the causality of the relationship between workload and work-home interference are recommended to include more than two waves and to explore different time lags (e.g., 3 months, 6 months, 1 year and 2 years) in order to determine what time interval would be most appropriate to detect the causal effects (De Lange et al., 2004; Hoogendoorn, Bongers, De Vet, Twisk, Van Mechelen & Bouter, 2002; Taris & Kompier, 2003). One could also include additional indicators of workload (e.g., qualitative demands, Peeters et al., 2004) and different indicators of work-home interference (e.g., time-based and strain-based work-home interference, Van Hooff, Geurts, Taris, Kompier, Houtman & Van den Heuvel, 2005) in order to determine optimal time lags for different job characteristics and different components of work-home interference.

Second, we proposed two mechanisms explaining the reversed causal relationship between work-home interference and workload. The stressor-creation mechanism referred to possible real changes in the work and/or family environment resulting from high levels of work-home interference. In this study, we investigated in-between job and family changes but in a rather global way. It may be that more subtle changes may have occurred, for instance, in the quality of social relationships in each or both domains. Moreover, we did not ask whether the reported changes (e.g., child(ren) leaving house) were experienced negatively or positively. We, therefore, recommend assessing possible job and family changes in greater detail, thereby, also addressing workers' valance of these changes.

Third, the current study conceptualized the influence between work and home only as work-home interference. However, it should be recognized than workers may also benefit from combining 'work' with 'family' in terms of self-esteem, happiness and health (often referred to as enhancement, facilitation, enrichment, and positive spillover, Carlson, Kacmar, Wayne, & Grzywacz, 2006; Frone, 2002; Geurts et al., 2005; Grzywacz & Marks, 2000; Greenhaus & Powell, 2006). Bakker and Geurts (2004) found support for a dual-process model of work-home interaction whereby job demands (e.g., high work pressure) were most

strongly related to exhaustion, which, in turn, was related to negative influence from work, whereas job resources (e.g., job support and career opportunities) were primarily associated with work engagement, which coincided with positive influence from work. However, job demands (workload) may also elicit positive (rather than negative) load reactions (e.g., energy mobilization and skill acquisition) as long as demands are manageable (i.e., do not exceed individuals' coping capacity) and have motivating potential. Future longitudinal research examining the temporal relationships between various types of job demands (e.g., quantitative and qualitative demands) and both negative and positive influence between work and home may further increase our understanding of the relationship between workload and work-home interference across time.

Fourth, an interesting question is to what extent and how personality factors may impact the relationship between workload and work-home interference. A recent cross-sectional study (Beauregard, 2006) has shown, for instance, that those with a high tendency for negative self-evaluations of one's own performance ('maladaptive perfectionism'), experienced relatively high levels of interference from work. This association may indicate that individuals high in maladaptive perfectionism perceive the same work demands as more stressful (the 'gloomy perception' mechanism), more strongly create or elicit their own job stressors (the 'stress creation' hypothesis; by working less efficiently), and/or expend more effort on the same tasks resulting in the spillover of negative load reactions (WH interference), as compared to those low in maladaptive perfectionism. Studies addressing the role of personality in relation to work demands and/or WH interference were limited by their cross-sectional design. Therefore, longitudinal studies are needed to provide insight in whether the causal nature of the relationship between workload and work-home interference is different for workers with different personality characteristics.

From a practical point of view, it is important to suggest measures that may prevent or reduce workload and work-home interference. At the organizational level, it is important to offer so-called family-friendly arrangements (e.g., flexible starting and finishing times, part time work, subsidized childcare, and paid parental leave) than enable workers to meet demands in both domains. Offering a family-friendly policy may be a necessary but not a sufficient condition for reducing or preventing work-home interference. Research has demonstrated the importance of having a family-friendly culture that is typified by a positive attitude of management, supervisors and colleagues towards the use of available family-friendly arrangements (Dikkers, Geurts, Den Dulk, Peper, & Kompier, 2004; Chapter 3). At the individual level, a successful strategy to deal with high workload and work-home

interference is to alter one's attitudes and expectations in such a way that both work and family demands can realistically be met (Geurts & Demerouti, 2003). Hereby, it seems to be crucial to make conscious decisions about how to spend time and effort in each domain. Recent research (Baltes & Heydens-Gahir, 2003) suggests that people who focus on specific goals and who use their time, effort and skills intentionally to achieve desired outcomes in each domain, report less stressors and experience higher well-being than people who do not use such a strategy.

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3

Relations among Work-Home Culture, the Utilization of Work-Home Arrangements, and Work-Home Interference

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Abstract

In the present study, we examined the associations among work–home (WH) culture, the utilization of work–home (WH) arrangements, and work–home interference (WH interference) among 638 workers from a Dutch financial consultancy firm. We i) developed a typology of WH culture, ii) examined whether the utilization of 6 WH arrangements differed for various types of WH culture, iii) determined whether various types of WH culture and the utilization of WH arrangements were related to WH interference, and iv) studied these associations for subgroups of workers. Results showed that WH cultures can be characterized by 2 dimensions, i.e., support and hindrance. More supportive and less hindering WH cultures were not associated with a higher utilization of WH arrangements, but did co vary with lower levels of WH interference.

3.1 Introduction

A direct consequence of the incremental role women play in the labor market today is the rise in the number of dual-earner families in Western countries. This societal shift has—aside from its benefits for female emancipation—challenged working men and women to find a new balance between work and domestic obligations. A survey conducted among a representative sample of the U.S. workforce indicated that 30% of all employees encountered interference from their work in their private life (Bond, Galinsky, & Swanberg, 1998). This was true for an even higher proportion (40%) of employed American parents (Galinsky, Bond, & Friedman, 1993). In the present study, work–home interference[2] is defined as the extent to which a worker's functioning at home is hampered by demands from the work domain (Geurts & Demerouti, 2003; Geurts, Taris, Kompier, Dikkers, Van Hooff, & Kinnunen, 2005). In the literature, two different (though related) types of work-home (WH) interference are generally distinguished (Greenhaus & Beutell, 1985: i) Time-based work-home interference develops when time devoted to work obligations makes it physically impossible to meet obligations in the private domain, and ii) strain-based work-home interference refers to the extent to which strain developed in the work domain hampers functioning in the private domain. In the current study, we took both types of work-home interference into account.

A considerable amount of knowledge on work-home interference and its presumed detrimental effects have been gathered (for reviews, see Frone, 2003; Geurts & Demerouti, 2003). A meta-analysis by Allen, Herst, Bruck, and Sutton (2000) showed that work-home interference was associated with work-related outcomes (e.g., diminished organizational commitment and intention to turnover), nonwork-related outcomes (e.g., life and marital dissatisfaction, family performance), and particularly stress-related outcomes (e.g., burnout, general psychological strain, depressive symptoms). Many companies in Western countries have acknowledged the existence and detrimental impact of work-home interference and have therefore introduced work–home (WH) arrangements that may enable employees to better coordinate their work and domestic obligations. Recently, many national governments have also made the interface between work and nonwork a leading element of their policy while introducing legislation in this area. WH arrangements issued by companies and governments can globally be grouped into two categories: i) flexible WH arrangements enlarging workers' temporal and spatial flexibility at work (e.g., flextime, telecommuting, and part-time work)

[2] In this thesis also referred to as negative work-home influence

and ii) dependent-care WH arrangements enabling workers to combine their work and caring responsibilities (e.g., subsidizing child care and allowing temporary leave periods for taking care of dependent family members).

Although previous research has shown that employees who used WH arrangements were significantly more committed to the organization and had lower intentions to quit than those who did not use WH arrangements (Eaton, 2003; Grover & Crooker, 1995), many employees do not use available WH arrangements or do not benefit from them in terms of an improved work–home balance (Allen, 2001; Anderson, Coffey, & Byerly, 2002; Eaton, 2003; Lobel, 1999; Thompson, Beauvais, & Lyness, 1999; Williams, 2000). Not using accessible WH arrangements may be due to poor communication between supervisors and employees. There is also evidence (Starrels, 1992, for a review), however, that the corporate culture may hinder employees from using such arrangements (Thompson et al., 1999). For instance, in some organizational cultures, the amount of time visibly spent at work is considered an indication of employees' investments and career dedication (Lewis & Taylor, 1996), and these organizational norms may deter employees from taking time off for family responsibilities. Thus, despite offering formal access to WH arrangements introduced by the organization, unsupportive work–home (WH) cultures may undermine the utilization and, therefore, the effectiveness of such arrangements in terms of an improved balance between both life spheres (Anderson et al., 2002; Eaton, 2003; Kossek & Ozeki, 1998; Thompson et al., 1999).

Research questions

The current study was designed to shed light on the associations among WH culture, the utilization of WH arrangements, and WH interference. We addressed these associations by i) developing a measure and typology of WH cultures, ii) examining whether the actual utilization of WH arrangements differs for various types of WH culture, and iii) determining whether various types of WH culture and the utilization of WH arrangements are related to time- and strain-based WH interference. In contrast with previous studies, the associations of the utilization of WH arrangements with WH culture and WH interference were not only investigated on a general level, but also for each WH arrangement separately, as well as for different subgroups of workers (i.e., men vs. women and parents vs. nonparents).

Our research was guided by the following questions:

1. How many and what type of WH arrangements are used, and which subgroups of workers are most likely to use (certain types of) arrangements?
2. Which dimensions typify WH culture, and which subgroups perceive what type of culture?

3. Are certain types of WH culture associated with higher utilization of (certain types of) WH arrangements, and do these associations differ for certain subgroups of workers?
4. Are the utilization of WH arrangements and/or certain types of WH culture associated with less (time- and strain-based) WH interference, and do these associations differ for certain subgroups of workers?

The utilization of WH arrangements

WH arrangements can be described as arrangements that enable employees to better manage their work–home interface (cf. Thompson et al., 1999). Few studies have addressed the question of to what extent employees actually use such arrangements and whether certain subgroups of workers are more likely to use certain types of WH arrangements than other subgroups of workers (Research Question 1). Some studies suggest that flexible arrangements (providing more control over work schedule and work location) are used more frequently than, for instance, child-care arrangements (Allen, 2001; Grover & Crooker, 1995). However, many studies have overlooked the fact that certain types of WH arrangements are not eligible to all employees. For instance, flexible working times and flexible work locations are not accessible to most shift workers, and child-care arrangements are only profitable for working parents (with young children living in the household). Therefore, the question remains as to whether flexible WH arrangements are still used frequently by subgroups (e.g., parents) that also get access to other (child-care related) arrangements. The current study incorporates both flexible WH arrangements (i.e., flexible starting and finishing times, telecommuting, working from home occasionally, and part-time work) and child-care related WH arrangements (i.e., subsidized child care and parental leave). Empirical research indicates that, on average, women use slightly more and parents use far more WH arrangements than men and workers without children, respectively (Allen, 2001; Haas & Hwang, 1995; Lyness & Thompson, 1997; Thompson et al., 1999). The gender difference might be explained by the fact that in many countries, including the Netherlands (the country for which this study presents its findings), women perform two thirds of the care-giving and household tasks at home (Sociaal en Cultureel Planbureau, 2000). This makes them more eligible for using facilities aimed at improving the coordination between work and domestic obligations. Consequently, we expect that women (Hypothesis 1a) and parents (Hypothesis 1b) will use more WH arrangements than men and nonparents, respectively.

WH Culture

One of the most recent and complete definitions of WH culture has been provided by Thompson et al. (1999), that is, "the shared assumptions, beliefs and values regarding the extent to which an organization supports and values the integration of employees' work and family lives" (p. 394). Thompson et al. (1999) contributed to the literature by constructing the first (20-item) measure of WH culture, incorporating three components: i) supervisory support and sensitivity to employees' responsibilities, ii) negative career consequences associated with utilizing WH arrangements, and iii) organizational time expectations that employees prioritize work above family. The first component was also addressed by Allen (2001). She defined WH culture in terms of "the global perceptions that employees form regarding the extent to which the organization is family-supportive" (p. 416) and constructed a 14-item measure of family-supportive organization perceptions (FSOP). Allen criticized Thompson et al.'s (1999) measure of supervisory support, since it confounded support on a specific level (from supervising persons) with support on a more general level (from the organization). Therefore, Allen (2001) disentangled these two levels of support by constructing separate measures for family friendliness from either direct supervisors or the organization. Clark (2001) also made an attempt to capture companies' family friendliness by developing a 13-item questionnaire that measured three components: i) temporal flexibility (flexible work scheduling), ii) operational flexibility (flexible work processes), and iii) supervisors' support for employees' family activities (resembling the supervisory support construct of Allen, 2001). However, we believe that temporal and operational flexibility should not be considered cultural characteristics since they typically characterize job content (resembling decision latitude in the classical job demand–control model; Karasek, 1989).

Considering these operationalizations of WH culture, support for use of WH arrangements is clearly a central dimension. Support from colleagues regarding the usage of WH arrangements has thus far been ignored. We can imagine, though, that employees feel more entitled to use WH arrangements when direct colleagues are sensitive to family responsibilities of workers and express positive attitudes toward the utilization of such arrangements. Apart from support, hindrance should be considered a second central dimension of WH culture since workers are less inclined to use WH arrangements when they believe this might negatively affect their career and performance appraisal (Thompson et al., 1999). In the current study, we therefore expected to find that WH culture is characterized by a two-dimensional structure, distinguishing between support and hindrance (Hypothesis 2a). Hereby, support refers to the extent to which the organization, direct supervisors, and

colleagues are perceived to be supportive of the integration of employees' work and private lives and the utilization of WH arrangements. Hindrance reflects the extent to which organizational norms and expectations (i.e., time expectations and related negative career consequences) are perceived to impede employees' work–home balance and the use of WH arrangements. These two dimensions are expected to be negatively associated: Perceptions of high support will covary with perceptions of low hindrance (i.e., approving culture), and perceptions of low support will be associated with high hindrance (i.e., obstructing culture). We can also imagine, however, that different combinations of these two dimensions may occur. For instance, workers may feel supported by direct supervisors and colleagues but simultaneously expect negative career consequences when they would actually use WH arrangements (high support and high hindrance; i.e., contradictory culture). Workers may also perceive the WH culture as indifferent when they experience low hindrance but also low support regarding the utilization of WH arrangements. In the current study, an attempt is made to create such a WH culture typology by crossing the dimensions of support and hindrance (Research Question 2).

Regarding the question whether certain subgroups of workers have different perceptions of WH culture, previous research has not shown significant differences across gender and parental status (Behson, 2002; Berg et al., 2003; Clark, 2001; Thompson et al., 1999). Accordingly, we hypothesize *(*Hypothesis 2b) that the subgroups under study (i.e., men vs. women and parents vs. nonparents) do not differ in their perceptions of WH culture.

The relationship between WH culture and utilization of WH arrangements

Although the association between WH culture and the actual utilization of WH arrangements (Research Question 3) has rarely been studied, empirical findings indicate a relationship between a supportive WH culture and higher utilization of WH arrangements (Allen, 2001; Thompson et al., 1999; Williams, 2000), supporting our earlier proposition that employees feel more entitled to use such arrangements if this is enforced by the organizational culture. There are indications, though, that a supportive WH culture is related to the utilization of flexible but not child-care WH arrangements. However, it is likely that a lower utilization of the latter type of arrangements (which are potentially profitable for working parents only) may have reduced the statistical power of this association. Therefore, in the present study, the relationship between WH culture and usage of (the number and type of) WH arrangements is examined for women versus men and parents versus nonparents, separately. In general, we

expect that WH arrangements are used most frequently in a WH culture that is characterized by high support and low hindrance (Hypothesis 3).

The relationships of WH culture and utilization of WH arrangements with WH interference

Only a scarce amount of literature reports on the association between the utilization of WH arrangements and WH interference (Research Question 4; Kossek & Ozeki, 1998, for a review). None of the studies reported has made the current distinction between time- and strain-based WH interference, well known from the work–home literature. Empirical findings are supportive of a lower level of WH interference among workers that used WH arrangements compared with workers not using such facilities. Again, this association was predominantly found for the use of flexible WH arrangements, as opposed to child-care arrangements (Allen, 2001; Bailyn, 1993; Goff, Mount, & Jamison, 1990; Miller, 1984; Thomas & Ganster, 1995; Thompson et al., 1999). This differential relationship may again be caused by the fact that not all employees profit from the latter type of arrangements, whereas the former type is potentially profitable for every worker. Therefore, in the current study, the relationship between the utilization of WH arrangements and (time- and strain-based) WH interference is examined by differentiating among certain types of WH arrangements, as well as among certain subgroups of workers (i.e., women vs. men and parents vs. nonparents).

The association between WH culture and WH interference has been studied more extensively but without notifying the distinction between various types of WH interference (i.e., time vs. strain based). There is ample evidence for lower levels of WH interference in cultures that are typified by high support and low hindrance regarding the usage of WH arrangements (Allen, 2001; Batt & Valcour, 2003; Bowen, 1998; Carlson & Perrewe, 1999; Thomas & Ganster, 1995; Thompson et al., 1999). It is, therefore, expected that employees report lower levels of (both time- and strain-based) WH interference, the more they use (potentially profitable) WH arrangements (Hypothesis 4a) and the more supportive and less hindering they perceive the WH culture to be (Hypothesis 4b). Since these associations have, thus far, not been examined for various subgroups, no specific hypotheses were formulated for the subgroups under study.

In sum, a fine-grained analysis was made of the associations among WH culture, the utilization of WH arrangements, and WH interference by i) developing a new measure and typology of WH culture, ii) examining whether the actual utilization of (certain types of) WH arrangements is higher in a more supportive WH culture, iii) determining whether a more supportive WH culture and the utilization of (certain types of) WH arrangements are

associated with less (time- and strain-based) WH interference, and iv) examining whether the associations between WH culture, the utilization of WH arrangements, and WH interference differ for various subgroups of workers (men vs. women and parents vs. nonparents).

3.2 Method

Participants

Data for the current study were collected through a survey held among employees of a Dutch subsidiary of a financial consultancy firm headquartered in the United States. This company is a typical example of a postindustrial knowledge company. Of all 5,200 employees working in this company, a random sample of 1,604 workers was drawn. In total, 638 questionnaires were completed (40% response rate). The response group (N = 638) was quite representative of the total company population with respect to gender (response group: 44% female vs. 56% male; company: 43% female vs. 57% male) as well as age (response group: ≤29 years: 40%; 30–39 years: 35%; 40–49 years: 15%; ≥50 years: 10%; company: ≤29 years: 44%; 30–39 years: 33%; 40–49 years: 12%, ≥50 years: 10%). Most workers were educated at an academic level (38%), followed by a large proportion of employees educated at the higher vocational level (31%); 11% and 1% of all participants were educated at average and lower vocational levels, respectively. About one third of all employees (34%) had children living in the household, and a large proportion of workers (69%) had a partner with whom they were married or cohabiting.

Measures

Utilization of WH arrangements. Employees were given a short introduction into the availability of WH arrangements both within the general Dutch legal context and within their company. The current study included six arrangements that were actually available to them, that is, four flexible WH arrangements: i) flexible working times (i.e., variability in starting and finishing times), ii) telecommuting (i.e., working at or nearby home to avoid commuter traffic), iii) working from home occasionally, and iv) working part time; and two child-care WH arrangements: v) financial support for child-care costs and vi) parental leave. For each WH arrangement, employees were asked to indicate whether or not they (had) used this arrangement (0 = no; 1 = yes). The total number of yes responses constituted the measure of total utilization of WH arrangements (i.e., sum score) and could range from 0 (none of the arrangements were used) to 6 (all of the arrangements were used; M = 1.47, SD = 1.23).

WH culture. WH culture was measured with a self-developed, 18-item instrument inspired by the questionnaires constructed by Thompson et al. (1999) and Allen (2001). We measured the support dimension of WH culture by using three subscales: i) organizational support, consisting of four items (e.g., "In general, this company is considerate towards employees' private situation" and "This company is supportive of employees who want to switch to less demanding jobs for private reasons"), ii) supervisor support, measured by three items (e.g., "My direct supervisor supports employees who want to switch to a less demanding job because of their private situation" and "My direct superior supports employees who (temporarily) want to reduce their working hours for private reasons"), and iii) colleague support, consisting of four items of which three were mirror images of the supervisor items (e.g., "My colleagues support employees who [temporarily] want to reduce their working hours for private reasons"), and one was a unique, additional item ("My colleagues help me out if I am having a hard time coping with my caregiving responsibilities"). Answer alternatives ranged from totally disagree (1) to totally agree (5). A support score was calculated by averaging the scores on the three subscales (i.e., organizational, supervisor, and colleague support), with higher scores reflecting a more supportive WH culture (M = 3.30, SD = .60, α = .73).

Hindrance, the second WH culture dimension, was measured by using two subscales: i) negative career consequences, consisting of four items (e.g., "Employees who turn down a promotion because of private circumstances will suffer negative career consequences within this company" and "In this company, employees who [temporarily] reduce their working hours for private reasons are considered less ambitious"), and ii) time expectations, measured by three items (e.g., "If necessary, employees within this company are expected to prioritize their work over their private situation" and "In order to be taken seriously in this company, employees should work long days and be available all the time"). Answer alternatives again ranged from totally disagree (1) to totally agree (5). A hindrance score was calculated by averaging the scores on the two subscales (i.e., negative career consequences and organizational time expectations), with higher scores signifying a more hindering WH culture (M = 3.61, SD = .70, α = .64).

Work-home interference. Time- and strain-based WH interference were measured by using a newly developed questionnaire, that is, the Survey Work–Home Interaction NijmeGen-SWING (Geurts et al., 2005; Van der Hulst & Geurts, 2001). For both WH interference scales, answer alternatives were never (1), sometimes (2), often (3), and always (4). For each WH interference scale, the four items were averaged, with higher scores

reflecting higher levels of WH interference. Time-based WH interference was measured by four items (e.g., "How often does it happen that" . . . "your work schedule makes it difficult for you to fulfill your domestic obligations?" and "your work takes up time that you would have liked to spend with your spouse/family/friends?"; $M = 1.98$, $SD = .53$, $\alpha = .79$). Strain-based WH interference was also measured by four items (e.g., "How often does it happen that" . . . "you find it difficult to fulfill your domestic obligations because you are constantly thinking about your work?" and "your work obligations make it difficult for you to feel relaxed at home?"; $M = 1.86$, $SD = .49$, $\alpha = .82$).

Subgroups. Subgroups were created based on gender and parental status. Gender was measured with a single question (i.e., "What is your gender?"; 1 = female and 2 = male). Parental status was measured by asking, "Do you have children living in the household, and if you do, what is the age of each child?" Since only parents of young children were eligible to use child-care arrangements and parental leave, respondents' answers were used to create three parental groups, that is, those without children living in the household (0), those with older children (≥12 years) living in the household (1), and those with young children (<12 yrs) living in the household (2). In case employees had children of different age groups, they were placed in the category of the oldest child (1).

Statistical analyses

To make sure that time-based WH interference and strain-based WH interference were indeed empirically distinct constructs, we first conducted two preliminary confirmatory factor analyses (CFA; Jöreskog & Sörbom, 1996). We tested the fit of two alternative models for the relations among the eight WH interference items. In a first model, all eight items were forced to load on one latent factor. In a second model, we created two latent factors: one for the four time-based items and one for the four strain-based items. If the second model provides a better (and good) fit compared with the first model, then the two WH interference indicators can be considered empirically distinct constructs. The fit of the respective models was compared in terms of their chi-square value, as well as the goodness-of-fit index (GFI), the non-normed fit index (NNFI), the comparative fit index (CFI), and the root mean square residual (RMSEA). Values of .90 and over (for GFI, NNFI, and CFI) or .08 and under (RMSEA) signify acceptable fit (Byrne, 2001).

To determine whether women (Hypothesis 1a) and parents (Hypothesis 1b) used more WH arrangements than men and nonparents, respectively, we performed a univariate analysis of variance (ANOVA) with the utilization of WH arrangements (0–6) as the dependent

variable and gender (1, 2) and parental status (0, 1, 2) as independent variables (in case the three parental groups differed from each other in their utilization of WH arrangements, post hoc Bonferroni tests were conducted to find out which of the three parental groups differed from one another). To determine whether women versus men (1, 2) or the three parental groups (0, 1, 2) used different types of WH arrangements, we performed a series of chi-square tests for each specific WH arrangement (0 = not used vs. 1 = used).

To test Hypothesis 2a that WH culture is best characterized by a two-dimensional structure, we compared the fit of several alternative factor models with the help of CFA (Jöreskog & Sörbom, 1996). We first selected a 50% random exploratory sample ($N = 316$) of the total sample. Then, in a first-factor model (M1, one-factor model), the 18 WH culture items were forced to load on one single latent factor. In a second model (M2, five-factor model), five latent factors were created in line with the five subscales of WHI: one for the four items representing organizational support, one for the three items measuring supervisor support, one for the four items reflecting colleague support, one for the four items representing negative career consequences, and one for the three items reflecting organizational time expectations. In a third model (M3, 1 second-order factor model), one higher order factor was added based on the assumption that one higher order factor underlies the five subscales. In a fourth model (M4, 2 second-order factor models), two higher order factors were created assuming that two higher order factors, that is, the proposed central dimensions of WH culture (support and hindrance), underlie the five subscales. Again, the fit of the respective models was compared in terms of their chi-square value, as well as GFI, NNFI, and CFI ($\geq .90$) and RMSEA ($\leq .08$). Subsequently, the analyses were cross-validated in an independent 50% random confirmatory sample ($N = 319$).

To develop a WH culture typology (Research Question 2), we crossed the two proposed dimensions of WH culture (support and hindrance) by splitting both the support and the hindrance scale into high (≥ 3) and low (<3) scores. By combining the low and high scores on each dimension, four types of WH culture were created in accordance with the earlier suggested WH culture typology: i) an approving culture (high support and low hindrance), ii) an indifferent culture (low support and low hindrance), iii) a contradictory culture (high support and high hindrance), and iv) an obstructing culture (low support and high hindrance). To determine whether each of the four proposed types of WH culture included a relatively low or high proportion of men (1) versus women (2) or of nonparents (0) versus parents of older children (1) versus parents of young children (2), we performed chi-square tests.

To test Hypothesis 3 that WH arrangements are used most frequently in a more supportive and less hindering WH culture (i.e., the approving culture), we performed a one-way ANOVA with total WH arrangement utilization (0–6) as the dependent variable and the WH culture typology (1–4) as the independent variable (the relationships of gender and parental status with the general utilization was already assessed; see Hypotheses 1a and 1b). In addition, chi-square tests were performed to examine whether the use of a specific WH arrangement (0 = not used vs. 1 = used) differed among the four types of WH culture. To explore whether the various subgroups of workers (gender and parental status) used certain types of WH arrangements more often in specific types of WH cultures, we replicated the chi-square tests for men versus women (1, 2), as well as for parents versus nonparents (0, 1, 2), separately.

To test Hypothesis 4 that workers experience less WH interference, the more they use WH arrangements (Hypothesis 4a) and the more favorable (i.e., approving: high support, low hindrance) they perceive the WH culture (Hypothesis 4b) to be, we performed a multivariate ANOVA (MANOVA) with time- and strain-based WH interference as dependent variables. As independent variables, we entered employees' utilization score (categorized into three categories: 0 = no utilization used, 1 = one arrangement used, 2 = two or more arrangements used), the WH culture typology (1–4), and the subgroup variables of gender (1, 2) and parental status (0, 1, 2; in case the three parental groups differed from each other in experienced WH interference, post hoc Bonferroni tests were conducted to find which groups differed from each other). In addition, we performed six separate MANOVAs to determine whether the use of each of the specific WH arrangements was associated with less WH interference in one of the four types of WH culture and/or for specific subgroups. Again, the various types of WH culture (1–4), gender (1, 2), and parental status (0, 1, 2) were entered as factors, but this time together with the utilization of one specific WH arrangement (0, 1). Time- and strain-based WH interference were again inserted into the analyses as dependent variables.

3.3 Results

Preliminary analyses

Our CFA revealed that the model in which two latent factors were distinguished for time-based and strain-based WH interference, respectively, fit the data well, $\chi^2(19, N = 638) = 95.28$, $p < .001$ (GFI = .93, NNFI = .94, RMSEA = .07, CFI = .96), and significantly better, $\Delta\chi^2(2, N = 638) = 481.23$, $p < .001$, than the one-factor model, $\chi^2(21, N = 638) = 576.51$, $p < .001$ (GFI = .68, NNFI = .59, RMSEA = .20, CFI = .70). Thus, the two WH interference

measures in our study may be regarded as two different, albeit related ($r = .56$, $p < .001$), constructs.

Utilization of (certain types of) WH arrangements across subgroups

Table 3.1 shows the proportion of workers that (have) used each of the specific WH arrangements. In addition, the proportions are presented for the various subgroups under study (gender and parental status).

On average, the employees used between one and two arrangements ($M = 1.47$, $SD = 1.23$). A large proportion of employees (51%) used flexible working times. A substantial proportion of workers also worked from home occasionally (40%) or worked part time (29%). The WH arrangements that were used least frequently were telecommuting (13%), subsidized child-care support (12%), and parental leave (5%).

Table 3.1. Utilization of (specific types of) WH arrangements by (subgroups of) workers (total N = 638)

			%				
WH arrangement	*N*	%	Men	Women	PY	PO	NC
Flexible working times	316	51	52	46	62**	50	47
Working from home occasionally	245	40	46***	29	55***	51	32
Working part time	179	29	13	47***	45***	24	23
Telecommuting	79	13	16	9	24***	18	8
Financial child-care support	70	12	8	14**	42***	0	1
Parental leave	30	5	2	8***	18***	0	0
n			354	284	166	60	412

Note. WH arrangement = work-home arrangement; PY = parents of young children (<12 years); PO = parents of older children (≥12 years); NC = no children.

** $p < .01$, *** $p < .001$.

Although the total utilization of WH arrangements did not differ for men and women, $F(1, 626) = 3.56$, *ns*, the chi-square tests for specific WH arrangements revealed that women did work more often part time, $\chi^2(1, N = 616) = 93.77$, $p < .001$, and they more frequently used child-care arrangements, $\chi^2(1, N = 606) = 7.25$, $p < .01$, and parental leave, $\chi^2(1, N = 604) = 11.67$, $p < .001$, compared with men. Men, on the other hand, worked occasionally from home more frequently than women, $\chi^2(1, N = 614) = 18.03$, $p < .001$. Parents of young (<12 years) children used substantially more WH arrangements ($M = 2.43$, $SD = 1.35$) compared with

workers with older (M = 1.41, SD = 0.97) or no children (M = 1.09, SD = 0.97), $F(2, 626) = 98.06$, $p < .001$. In fact, parents of young children used all six specific WH arrangements more often than the other two parental groups. In sum, our hypothesis that women and parents use more WH arrangements than men and nonparents, respectively, was fully supported for the parents of young children (Hypothesis 1b) and for three of the six WH arrangements supported for women (Hypothesis 1a).

WH culture and WH culture typology across subgroups

To test Hypothesis 2a that WH culture is best characterized by two dimensions, that is, support and hindrance, we compared four alternative models (M1–M4; see statistical analyses section) for the relationships among the 18 WH culture items within the exploratory subsample (N = 316, Table 3.2).

Clearly, the one-factor model (M1) did not account well for the data, $\chi^2(135, N = 316) = 1{,}288.43$, $p < .001$ (GFI = 64, NNFI = .45, RMSEA = .19, CFI = .51). The five-factor model (M2), however, fit the data well, $\chi^2(125, N = 316) = 338.35$, $p < .001$ (GFI = .89, NNFI = .89, RMSEA = .08, CFI = .91). This model, extended with 1 second-order factor (M3), had a worse fit than M2, $\Delta\chi^2(5, N = 316) = 61.09$, $p < .001$. The five-factor model (M2), extended with 2 second-order factors (M4) fit the data almost as equally well as M2, $\Delta\chi^2(4, N = 316) = 29.83$, $p < .001$: All fit indices were (CFI) or approached (GFI, NNFI) .90, and the RMSEA was not over .08. Although this was also true for M2, M4 was a more parsimonious model (four extra *df*s). Moreover, the small difference in chi-square value between M4 an M2 should not be considered meaningful given the large number of observations (N = 316). Therefore, M4 was preferred as the model that best fit the data of the exploratory sample.

Table 3.2. Comparison of four different factor models within the exploratory (N = 316) and confirmatory (N = 319) sample

Model	χ^2	df	GFI	NNFI	RMSEA	CFI
Exploratory sample						
M1 (1-factor model)	1,288.43	135	.64	.45	.19	.51
M2 (5-factor model)	388.35	125	.89	.89	.08	.91
M3 (One 2nd-order factor model)	399.44	130	.87	.87	.08	.89
M4 (Two 2nd-order factor model)	368.18	129	.88	.88	.08	.90
Confirmatory sample						
M4 (Two 2nd-order factor model)	389.04	129	.88	.87	.08	.89

Note. GFI = goodness-of-fit index; NNFI = non-normed fit index; RMSEA = root-mean-square error of approximation; CFI = comparative fit index.

To examine the robustness of this model, we cross-validated M4 in the confirmatory sample (N = 319, see Table 3.2). The results show that M4 also fit the data of the confirmatory sample acceptably well, $\chi^2(129, N = 319) = 389.04$, $p < .001$ (GFI = .88, NNFI = .87, RMSEA = .08, CFI = .89). On the basis of the findings of both the exploratory and confirmatory samples, M4 - reflecting five lower order factors (i.e., organizational, colleague, and supervisor support; negative career consequences; and organizational time demands) and two higher order factors (support and hindrance) - was considered the most parsimonious model that fit the data of both subsamples well. This result is supportive of our Hypothesis 2a that the WH culture is characterized by two different (albeit related, $r = -.42$) dimensions, that is, support and hindrance.

To develop the proposed WH culture typology, we split both dimensions into high (≥3) and low (<3) scores. Of the total sample (N = 638), a majority of employees (72%) scored high on the support dimension, and an even greater proportion of employees (80%) experienced high hindrance. By crossing the high or low scores of each dimension, we created four types of WH culture. The largest proportion of workers (N = 337) was found in a contradictory WH culture, that is, one with high support (M = 3.6, SD = 0.45) and high hindrance WH culture (M = 3.8, SD = 0.46). Lower, but still substantial proportions of workers were incorporated in the obstructing WH culture - that is, one with low support (M = 2.6, SD = 0.42) and high hindrance (M = 4.1, SD = 0.49; N = 163) - and the approving WH culture, that is, one with high support (M = 3.7, SD = 0.49) and low hindrance (M = 2.6, SD = 0.38; N = 114). Only a small number of employees was categorized in the indifferent WH culture, that is, one with low support (M = 2.7, SD = 0.32) and low hindrance (M = 2.6, SD =

0.55; $N = 15$). Because of the small proportion of workers in this latter type of WH culture (as opposed to the other three types of WH culture), these 15 workers were excluded from further analyses.

A comparison of the three remaining types of WH culture across subgroups (gender and parental status) revealed that the approving culture group included a relatively high proportion of women (56%) and a relatively low proportion of men (44%) compared with the contradictory WH culture (45% female vs. 55% male) and the obstructing WH culture (37% female vs. 63% male), $\chi^2(2, N = 614) = 9.53$, $p < .01$. Parents (of young or older children) did not differ in their perceptions of WH culture from nonparents. In sum, Hypothesis 2b that the various subgroups would not differ in their perceptions of WH culture was supported for parents versus nonparents but did not seem to be supported for men versus women, since women perceived the WH culture as more favourably than men.

WH culture typology and the higher utilization of (certain types of) WH arrangements across subgroups

A one-way ANOVA did not show an association between the WH culture typology (approving vs. contradictory vs. obstructing) and the utilization of WH arrangements, $F(2, 603) = 1.04$, *ns*. Thus, in contrast with our expectation (Hypothesis 3a), WH arrangements were not used more frequently the more favourably the WH culture was perceived. When examining this association for each of the six WH arrangements separately, we found that part-time work was used more frequently in an approving WH culture (36% of all workers in this WH culture utilized this possibility) than in an obstructing WH culture (only 22% of these workers utilized this possibility), $\chi^2(2, N = 594) = 6.20$, $p < .05$. Taking into account the various subgroups, we observed that the higher utilization of part-time work in the approving culture could primarily be attributed to parents of young children: Whereas parents of young children more often worked part time in an approving than in an obstructing WH culture, $\chi^2(2, N = 154) = 6.15$, $p < .05$, this was not true for the workers with older children, $\chi^2(2, N = 51) = 1.55$, *ns*, or without children, $\chi^2(2, N = 389) = 1.99$, *ns*. In sum, Hypothesis 3 (i.e., WH arrangements are used more frequently, the more favourably the WH culture is perceived) is generally not supported, except for one type of WH arrangement (i.e., part-time work) among one specific subgroup of workers (i.e., parents of young children).

WH culture typology, the utilization of WH arrangements, and WH interference across subgroups

To test our expectations that experienced levels of time- and strain-based WH interference are lower, the more workers use WH arrangements (Hypothesis 4a) and the more supportive and less hindering (i.e., approving) the WH culture is perceived to be (Hypothesis 4b), we performed a MANOVA with time- and strain-based WH interference as dependent variables, and we categorized WH arrangement utilization (0, 1, 2), the three types of WH culture (1, 2, 3), gender (1, 2), and parental status (0, 1, 2) as independent variables (see Table 3.3).

Table 3.3. MANOVA with time-and strain-based WH interference as dependent variables and the utilization of WH arrangements, WH culture, gender, and parental status as independent factors

	F		
Factor	Multivariate	Univariate Time-based WH interference	Univariate Strain-based WH interference
1. Use of WH arrangements (0, 1, 2)	1.11	2.02	0.67
2. WH culture typology (1, 2, 3)	7.44***	9.34***	13.47***
3. Gender (1, 2)	4.40*	6.18*	0.01
4. Parental status (0, 1, 2)	1.00	0.79	0.41

Note. MANOVA = multivariate analysis of variance; WH interference = work-home interference; WH arrangements = work-home arrangements; WH culture = work-home culture; Use of WH arrangements: 0 = no WH arrangement used, 1 = one WH arrangement used, 2 = two or more WH arrangements used; WH culture typology: 1 = approving culture, 2 = contradictory culture, 3 = obstructing culture; Gender: 1 = female, 2 = male; Parental status: 1 = parents of young children, 2 = parents of older children, 3 = no children. * $p < .05$, *** $p < .001$.

As one can see, workers that used no (0), one (1), or two or more WH arrangements (2) did not differ from each other in terms of experienced levels of time- or strain-based WH interference, $F(2, 638) = 1.11$, *ns*. This indicates that our expectation that workers would report less WH interference, the more they used WH arrangements (Hypothesis 4a), was not supported. In the three types of WH culture, however, different levels of both time-based and strain-based WH interference were reported, $F(2, 638) = 9.34$, $p < .001$, and $F(2, 638) = 13.47$, $p < .001$, respectively, and these associations were in line with our Hypothesis 4b: Workers in an approving culture reported less time- and strain-based WH interference ($M =$

1.68, *SD* = 0.48, and *M* = 1.63, *SD* = 0.40, respectively), than those in a contradictory (*M* = 1.98, *SD* = 0.51, and *M* = 1.85, *SD* = 0.48, respectively), and in an obstructing culture (*M* = 2.22, *SD* = 0.51, and *M* = 2.04, *SD* = 0.48, respectively). With respect to the subgroups under study, the three parental groups did not differ in their experience of either type of WH interference, but men and women did. In fact, men experienced more time-based WH interference (*M* = 2.09, *SD* = 0.50) than women (*M* = 1.86, *SD* = 0.54). None of the interaction effects among the independent factors were significant, indicating that the associations of the WH culture typology and the utilization of WH arrangements with WH interference were not different for specific subgroups. Also, additional MANOVAs that we performed for each specific WH arrangement separately did not reveal any significant interaction effects, indicating that the associations between the utilization of specific WH arrangements and WH interference also did not differ across subgroups.

3.4 Discussion

The purpose of the present study was to enlighten the associations among WH culture, the utilization of WH arrangements, and time- and strain-based WH interference among a representative sample (regarding gender and age) of 638 workers from a Dutch financial consultancy firm. We studied the utilization of six different WH arrangements (four flexible WH arrangements and two child-care WH arrangements) that were available to the respondents at the time this study was conducted. Moreover, we studied the associations across various specific subgroups, that is, men versus women and parents versus nonparents.

Utilization of WH arrangements and WH culture typology

In line with previous findings (Allen, 2001; Grover & Crooker, 1995) and not surprisingly, flexible WH arrangements (particularly flexible working times, working from home occasionally, and to a lesser extent part-time work) were used more frequently than the two child-care arrangements (i.e., financial child-care support and parental leave). An interesting finding was that parents of young children not only used subsidized child-care WH arrangements, but also flexible WH arrangements (e.g., flexible working times, working from home occasionally, and part-time work) quite often. In general, parents of young children used all WH arrangements more frequently than workers with older or no children (supporting Hypothesis 1b).

With respect to gender, we found that women used certain (but not all) facilities (i.e., part-time work and the two child-care WH arrangements) more frequently than men (partially

supporting Hypothesis 1a). In contrast, men occasionally worked from home more frequently than women. This finding raises the question whether men used this facility to improve their work–home balance or for other purposes. Taking a closer look at the motives reported by the respondents, it appeared that more than half of the men used this facility to "get their work finished" rather than to improve their work–home balance.

The results supported our assumption (Hypothesis 2a) that two dimensions, that is, support and hindrance underlie our newly developed measure of WH culture. By crossing these two dimensions, a WH culture typology was created, distinguishing among an approving, an obstructing, a contradictory, and an indifferent culture (owing to the low proportion of workers, this latter type of WH culture was excluded from the analyses). A remarkable finding was that more than half of the workers were incorporated in the contradictory WH culture, reflecting perceptions of relatively high (organizational, supervisory, and collegial) support, as well as relatively high hindrance (high time expectations and negative career consequences). This finding subscribes to our assumption that high support and high hindrance are not two ends of the same continuum but are in fact two dimensions that are not identical or exchangeable (though related, $r = -.42$). Apparently, many workers in this study perceived their company, supervisor, and colleagues as considerate of employees' private situation and of those who want to switch to less demanding jobs for private reasons but simultaneously reported that that these workers would be perceived as less ambitious and would encounter negative career consequences.

Whereas parents versus nonparents did not differ in their perception of the WH culture (Hypothesis 2b supported), women perceived the WH culture as more supportive and less hindering (i.e., approving) than men. We must note here that half of the women (49%) worked part time compared with only 13% of the men and that the approving WH culture also included a relatively high proportion of workers using this facility compared with the other types of WH culture. In fact, post hoc chi-square tests revealed that part-time working men and part-time working women did not differ in their WH culture perception, $F(2, 174) = 1.41$, *ns*, nor did the two gender groups that did not use this facility, $F(2, 420) = 2.70$, *ns*. Thus, when we controlled for part-time work, men and women no longer differed in their perceptions of the WH culture (supporting Hypothesis 2b when controlled for part-time work).

We did not find that WH arrangements were utilized more frequently in an approving WH culture than in less favorable WH cultures (i.e., obstructing and contradictory). The only exception was that, as just discussed, part-time work was used more frequently in this type of

culture, but particularly parents of young children were held accountable for this relationship. How can we explain the lack of any association between WH culture and the utilization of WH arrangements? One explanation might be that workers who actually (intend to) use WH arrangements are particularly at risk of being confronted with resistance from the company, their supervisor, or their colleagues. Those who have no intention of using WH arrangements have not been confronted with such resistance and may, therefore, have (too) favorable perceptions of how supportive the WH culture is. Although the three WH cultures did not significantly differ with respect to the utilization of WH arrangements, we do notice a cautious trend of higher utilization in the contradictory and obstructing WH cultures (M = 1.45, and M = 1.54, respectively) than in the approving culture (M = 1.35), which may be regarded as slight support for this reasoning.

Utilization of WH arrangements and WH interference

Our assumption that WH interference would be lower, the more workers utilize WH arrangements (Hypothesis 4a) was not supported. However, the conclusion that workers apparently did not benefit from WH arrangements in terms of WH interference is premature. First, we must realize that workers who experience problems in combining work and family are exactly those who utilize WH arrangements. Possibly, we did not observe a lower level of WH interference among workers who used WH arrangements because these workers still experienced a higher level of WH interference than their colleagues who did not have any problems with their work–family balance. As long as we do not examine changes in WH interference over time among workers who started to utilize one or more WH arrangements, a possible beneficial impact of utilizing WH arrangements cannot be confirmed nor excluded. A second explanation, also discussed earlier, is that certain facilities (e.g., occasionally working from home) may not have been used to improve the work–home balance but for other purposes (e.g., getting the job done). When workers use the same facility for different purposes (e.g., caregiving tasks vs. getting the work finished), possible favorable effects in terms of WH interference for some workers may have been covered by possible unfavorable effects in terms of WH interference for others.

WH culture typology and WH interference

In line with previous studies (e.g., Allen, 2001; Thompson et al., 1999), we found support for our assumption (Hypothesis 4b) that workers experience lower levels of time- and strain-based WH interference in a more favorable culture (i.e., approving WH culture). This finding

may be interpreted in two ways. First, a favorable organizational climate concerning the use of WH arrangements may be sufficient for workers to experience lower levels of time- and strain-based WH interference. However, the query remains as to why (i.e., by what underlying psychological or behavioral mechanisms) a favorable WH culture would have such positive impact, if it is not the utilization of WH arrangements. An alternative and perhaps even more plausible interpretation is that workers who experienced hardly any problems in combining work and family may have more (and possibly too) favorable perceptions of the WH culture.

Limitations and future research

A first and obvious limitation of the current study was the use of a cross-sectional design, making it impossible to verify the assumptions concerning the underlying causal directions of relationships among WH culture, the utilization of WH arrangements, and WH interference. Therefore, different interpretations of the same finding were plausible. Moreover, this design restricted us in establishing whether the utilization of certain WH arrangements was effective in terms of lower levels of WH interference. We suggest that future researchers look for opportunities to conduct 'natural experiments' among workers who start using flexible WH arrangements or child-care WH arrangements and to investigate changes in WH interference in a longitudinal design (cf. Kompier & Kristensen, 2001; Westman & Piotrkowski, 1999). Thus far, studies that used such opportunities are scarce (Geurts & Demerouti, 2003, for a review). If longitudinal research might reveal that the use of certain facilities is beneficial in terms of reduced levels of work-home interference, this would have important practical implications for the prevention of work-home interference and the improvement of employees' work–home balance. We need to bear in mind here that what is helpful for one subgroup (e.g., parents of young children) may not be beneficial for others (e.g., workers without children) and that taking into account specific subgroups is necessary to shed light on the possible effectiveness of various types of WH arrangements (cf. Taris & Kompier, 2003).

A second limitation concerned our measurement of the utilization of WH arrangements. We asked whether workers used or had used certain facilities at the time of study, reflecting not only present but also past utilization. For three facilities, we were able to examine the possible discrepancy between past and present utilization. There was 89% correspondence between the actual proportion of part timers and the ones that reported to (have) used this facility; for telecommuting and occasionally working from home, the degree of correspondence was 77% and 82%, respectively, indicating that our measure of utilization strongly represented actual utilization.

A third limitation is that only one sample was used in the current study. Possibly as a consequence, the indifferent culture type included an insufficient proportion of workers. To adequately validate the proposed WH culture typology, future research should incorporate a wider variation of companies. It would be interesting to find out if there is support for the proposed WH culture typology and, if so, on what level (e.g., company level, departmental level, subgroup level).

A final limitation is that only associations with work-home interference (negative work-home influence) were examined in the current study. In line with recent studies (Geurts et al., 2005; Grzywacz & Marks, 2000), we would suggest that future researchers also include positive indicators of work–home balance, as well as other types of outcome measures (e.g., health and well-being indicators and organizational commitment).

We hope that the present study contributed to current literature in this area both theoretically and methodologically and that the proposed WH culture typology and the fine-grained analysis of the associations among this typology, the utilization of (certain types of) WH arrangements, and work-home interference among subgroups of workers inspire future researchers and alert them to the risk of a bias to the positive among workers without work–home problems.

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4

Dimensions of work-home culture and their relations with the use of work-home arrangements and work-home interaction

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Abstract

This study examined the associations of work-home culture with (i) demographic and organizational characteristics, (ii) the use of work-home arrangements, and (iii) negative and positive work-home interaction, among 1,179 employees from one public and two private organizations. Substantial support was found for a 2-factor structure of a work-home culture measure differentiating between 'support' (employees' perceptions of organization's, supervisor's, and colleagues' responsiveness to work-family issues and to the use of work-home arrangements) and 'hindrance' (employees' perceptions of negative career consequences and time demands that may prevent them from using work-home arrangements). This 2-factor structure appeared to be invariant across organizations, gender and parental status. Significant relationships with organizational characteristics, the use of WH arrangements, and WH interaction supported the validity of these two cultural dimensions. It is concluded that if employers want to minimize work-home interference, to optimize positive work-home interaction, and to boost the use of work-home arrangements, they should create a work-home culture that is characterized by high support and low hindrance.

4.1 Introduction

Nowadays many employees in Western countries have difficulty combining work and family demands. A survey among a representative sample of the United States work force revealed that not less than 40% of employed parents feel that work interferes with their family life (Bond, Thompson, Galinsky, & Prottas, 2003). Similar and even higher figures have been reported for Dutch employees (Geurts, Kompier, Roxburgh, & Houtman, 2003) and for the Canadian work force (Duxbury & Higgins, 2001). Allen, Herst, Bruck, and Sutton's (2000) meta-analysis showed that work-home (WH) interference (often referred to as work-home conflict, Greenhaus & Beutell, 1985) is unfavorably associated with various work-, family-, and particularly stress-related outcomes.

As many Western governments and companies acknowledged the possible threat of WH interference for employee health and well-being, they introduced policies and arrangements that may enable workers to manage work and domestic obligations more successfully. Among these WH arrangements, two main categories can be distinguished: i) flexible arrangements, increasing employees' flexibility regarding working time and/or working place (e.g., part time work, flextime: flexible start and finishing times); and ii) care-related arrangements, enabling employees to perform their care-giving responsibilities (e.g., parental leave, subsidized childcare).

Considering the high proportion of workers reporting WH interference and the growing availability of possibly beneficial WH arrangements, remarkably small numbers of workers actually use such arrangements (Allen, 2001; Anderson, Coffey, & Byerly, 2002; Eaton, 2003; Lobel, 1999; Thompson, Beauvais, & Lyness, 1999). Apparently, the presence of WH arrangements is a necessary but insufficient condition for workers to use them. The missing link here may be the organization's work-home culture, which may be defined as "the shared assumptions, beliefs, and values regarding the extent to which an organization supports and values the integration of employees' work and private lives" (Thompson et al., 1999, p. 394). Recent research (Mauno, Kinnunen & Ruokolainen, 2006) showed that a supportive WH culture is related to positive work outcomes, such as higher job satisfaction and commitment and lower levels of physical complaints, thus underlining the importance of WH culture for worker well-being. It seems plausible that WH culture is related to the degree to which workers use WH arrangements. For example, there are quite strong indications that workers do not use available WH arrangements because they fear that using them will endanger their jobs or career opportunities (Burke, 2006; Kinnunen, Mauno, Geurts, & Dikkers, 2005; Lewis & Smithson, 2001). For instance, Perlow (1995) showed that engineers were reluctant to

profit from work-family benefits as they believed this would harm their career. Judiesch and Lyness (1999) showed that taking family leave was indeed negatively associated with subsequent promotions and salary increases.

Conceptualization of WH culture

Thompson et al. (1999) were among the first to conceptualize WH culture in terms of three components: i) managerial support (sensitivity shown by managers to employees' family responsibilities), ii) career consequences (the perception of negative career development as a consequence of the uptake of WH arrangements), and iii) organizational time demands (expectations that employees spend much time visibly at work). However, Allen (2001) argued that a distinction should be made between different levels of support within the organization, more specifically between global organizational support (employees' perceptions of how family-supportive the global organization is) and more specific supervisor support (employees' perceptions of how understanding the direct supervisor is of employees' desire to integrate work and private lives). In line with Allen (2001), we believe that a third support component of WH culture should be acknowledged as well, namely colleague support regarding the use of WH arrangements. For instance, Haas, Allard and Hwang (2002) found among working fathers that their use of parental leave was affected by their perceptions of work group norms that reward long hours at work.

Consequently, we conceptualize WH culture as a five-dimensional construct, including i) organization's support, ii) supervisor's support, iii) colleagues' support, iv) negative career consequences, and v) organizational time demands. We hypothesize, though, that these five components can be assigned to two more general (higher-order) dimensions of WH culture, namely 'support' reflecting employees' perceptions of organization's, supervisor's, and colleagues' responsiveness to work-family issues and the use of WH arrangements, and 'hindrance' reflecting employees' perceptions of negative career consequences and organizational time demands that may prevent them from using WH arrangements.

Previous empirical research

The limited research addressing the relationship between the organization's WH culture and the use of WH arrangements has some limitations (Allen, 2001; Thompson et al., 1999). First, as Kinnunen et al.'s (2005) review revealed, WH culture has been conceptualized and operationalized in very different ways, and "only a few multidimensional definitions and measures of WH culture were found" (p. 108). In addition, "the psychometric evaluation –

construct validity in particular - of the existing WH culture scales has been either relatively simple or insufficiently reported" (p. 109). Moreover, it remains to be seen "how appropriate and psychometrically sound these scales would turn out to be ... across different samples (organizations or subunits)" (p. 109). Second, the use of WH arrangements is often measured by composite scores (based on the total number of arrangements) whereas some WH arrangements are exclusively targeted towards specific subgroups of workers (e.g., parents of young children). Failure to distinguish among types of arrangements may therefore lead to undifferentiated and biased results. Third, and related to the previous point, specific worker characteristics (e.g., gender and parental status) are largely ignored in studies into the association between WH culture and WH arrangements. However, whereas all workers may be interested in using flexible arrangements (e.g., part time work), only parents of young children (in most Western countries, < 12 years old) are eligible to use certain care-related arrangements (i.e., subsidized childcare, and parental leave). In case the eligibility of certain subgroups of workers is disregarded by researchers, the use of such arrangements and its associations with WH culture may be underestimated.

In a first attempt to deal with these limitations, Dikkers, Geurts, Den Dulk, Peper and Kompier (2004; Chapter 3 of this thesis) conceptualized WH culture by the five previously proposed components, provided preliminary support for the existence of two higher-order factors of WH culture ('support' and 'hindrance'), and examined the relationships of WH culture with the use of specific types of WH arrangements and WH interference. However, the findings of this specific study (Dikkers et al., 2004) were based on only one organization, making it uncertain whether the observed 2-factor structure of WH culture would hold across different organizations, and seriously limiting the generalizability of results to other organizational settings (Kossek & Ozeki, 1998). Moreover, the study of Dikkers et al. (2004, Chapter 3 of this thesis) conceptualized the influence between work and home only as WH interference. However, current thinking is that interference may also originate from the home domain (home-work interference), for instance, when worries about children being ill hamper functioning at work (Geurts & Demerouti, 2003; Eby, Casper, Lockwood, Bordeaux & Brinley, 2005, for overviews). Moreover, it should be recognized that both domains may be a source of strength to one another as well (often referred to as facilitation, enrichment, or positive spillover, Carlson, Kacmar, Wayne, & Grzywacz, 2006; Greenhaus & Powell, 2006), for instance, when positive moods and skills built up at work spill over to home, and vice versa. Geurts et al. (2005) refer to these four components of work-home interaction as, respectively, negative WHI (negative influence from work on home), negative HWI (negative

influence from home on work), positive WHI (positive influence from work on home), and positive HWI (positive influence from home on work).

The present study

The current study partially replicates the Dikkers et al. (2004; Chapter 3 of this thesis) study i) by testing the proposed 2-factor structure of the WH culture measure ('support' and 'hindrance') against several competing factor models, and by testing the robustness of this structure across gender and parental status, and (ii) by examining the associations of the two WH culture dimensions ('support' and 'hindrance') with demographic characteristics (gender and parental status), the use of four specific arrangements (flextime, working part time, subsidized child care, and parental leave), and negative WHI (work-home interference).

The present study extends this previous study (i) by testing the robustness of the proposed 2-factor structure of WH culture across multiple samples drawn from three different types of organizations (one in the public sector, and two in the private sector), and ii) by examining the associations of the two WH culture dimensions ('support' and 'hindrance') with organization characteristics (the three samples incorporated in this study), and with all four components of WH interaction (negative and positive WHI and HWI).

Factor structure and typology of WH cultures

We expect that WH culture will be best characterized by two general dimensions: 'support' (employees' perceptions of organization's, supervisor's, and colleagues' responsiveness to work-family issues and the use of WH arrangements), and 'hindrance' (employees' perceptions of negative career consequences and organizational time demands that may prevent them from using WH arrangements; *Hypothesis 1*).

Associations of WH culture with demographic and organization characteristics

The as yet limited research on WH culture in multiple companies reveals that it was perceived as more supportive in companies that incorporated relatively large proportions of women (Allen, 2001; Poelmans, Chinchilla, & Cardona, 2003). This can be explained by resource dependence theory, arguing that as the proportion of women in organizations grows, organizations will need to adjust their human resource policies accordingly because of their increased dependence on female talent (Dreher, 2003). A similar reasoning can be followed for working parents: companies that incorporate a large proportion of parents may be more

responsive to work-family issues than companies with a work force dominated by workers without children.

Recent research has also shown that public organizations (owned by or controlled by the government) have been more concerned with assisting their workers with care-giving responsibilities and offered a broader range of WH arrangements than companies in the private sector (not under direct control of the government, Den Dulk, 2001; Evans, 2001; Mauno, Kinnunen & Piitulainen, 2005). Therefore, in the current study we expect that women (*Hypothesis 2a*), parents (*Hypothesis 2b*), and workers from the public organization (*Hypothesis 2c*) will report higher levels of WH culture-support and lower levels of WH culture-hindrance compared with men, employees without children and workers from the private organizations, respectively.

Associations of WH culture with the use of WH arrangements

The few studies that have examined these associations demonstrated that employees who perceived the company's WH culture as more responsive to work-family issues used more arrangements than those who perceived the WH culture as less supportive (Allen, 2001; Dikkers et al., 2004; Thompson et al., 1999). This relationship seems to fit the often demonstrated association between behavior and perceived social norms regarding that behavior (see Ajzen & Fishbein's theory of reasoned action, 1980). People are more inclined to behave in a certain way (e.g., to use arrangements), the more they feel this behavior is tolerated by and approved of by relevant others (e.g., supervisor). Therefore, we expect that employees who report higher levels of WH culture support and lower levels of WH culture hindrance are more likely to use WH arrangements (*Hypothesis* 3).

Associations of WH culture with WH interaction

Various studies have provided evidence that when the company's culture is more supportive towards the use of WH arrangements, employees experience less negative WHI and HWI (Allen, 2001; Anderson et al., 2002; Batt & Valcour, 2003; Dikkers et al., 2004; Eby et al., 2005; Mauno, Kinnunen & Pyykkö, 2005; Thomas & Ganster, 1995; Thompson et al., 1999; Thompson & Prottas, 2006). It can be assumed, though, that perceptions of high support and low hindrance regarding the use of WH arrangements are associated not only with less negative but also with more positive influence between both domains. For instance, Thompson and Prottas (2006) found that workers experienced more positive spillover between both domains when their supervisors and co-workers were more responsive to work-

family issues. We therefore expect that employees who report higher levels of WH culture-support and lower levels of WH culture-hindrance will experience less negative WHI (*Hypothesis 4a*), less negative HWI (*Hypothesis 4b*), more positive WHI (*Hypothesis 4c*), and more positive HWI (*Hypothesis 4d*).

4.2 Method

Participants

The total study sample (N = 1,179) included survey data collected from three Dutch organizations: 1) Public; a governmental institute in the service sector (N = 407; a 40% response rate). This sub-sample was representative of the company population regarding gender ($\chi^2_{(df = 1,\ N = 407)} = 0.00$, *ns)* and age distribution ($\chi^2_{(df = 2,\ N = 407)} = 1.51$, *ns*); 2) Plant; a subsidiary of a manufacturing company in the electro-technical sector (N = 269; 39% response rate). Only employees working on a daytime basis (and not those working in shifts) were included to make sure that the (flexible) arrangements were equally available to all employees. This sub-sample was representative of the company population with respect to both gender ($\chi^2_{(df = 1,\ N = 269)} = 3.67$, *ns*) and age distribution ($\chi^2_{(df = 2,\ N = 269)} = 2.13$, *ns*); and 3) Finance; a subsidiary of a consultancy firm in the financial branch (N = 503; 42% response rate). This sub-sample was representative of the company population with regard to both gender ($\chi^2_{(df = 1,\ N = 503)} = 0.17$, *ns*) and age distribution ($\chi^2_{(df = 2,\ N = 503)} = 0.67$, *ns*). In the total study sample, 69% of the participants were male. On average, employees were 40 years old (sd = 10.7). Of all employees, 53% had a university/college degree, 22% had a medium-level vocational training, and 4% had only primary school or lower vocational training. Most employees (80%) were married, and 66% had children living in the household. Of all participants, 25% had a supervisory function. On average, employees worked 36 hours weekly according to their contract (sd = 7.6).

Measures

WH culture was measured with an 18-item instrument developed by Dikkers et al. (2004, Chapter 3 of this thesis, see Table 4.1). Of these 18 items, 9 items were adapted from Thompson et al.'s (1999) questionnaire, and 9 items were newly developed by Dikkers et al. (2004), primarily to cover supervisor's and colleagues' support as components of WH culture. The 18 items represented the previously proposed five WH culture components: i) organization's support (items 1-4, Table 4.1, α = .82), ii) supervisor's support (items 9-11, Table 4.1, α = .82, of which 1 item paralleled an organization's support item), and iii)

colleagues' support (items 5-8, Table 4.1, α = .76, of which 3 items paralleled supervisor's items), iv) negative career consequences (items 15-18, Table 4.1, α = .79), and v) time demands (items 12-14, Table 4.1, α = .85). Answer alternatives ranged from 'totally disagree' (= 1) to 'totally agree' (= 5), with higher scores signifying higher levels of support, negative career consequences and time demands.

Use of WH arrangements. Employees were given a short introduction (in writing) into the available arrangements within the Dutch legal context and within their own company. The current study included four arrangements that were officially available to all employees within the three companies: 1) flextime (i.e., variable starting and finishing times), 2) part time work; 3) subsidized child care, and 4) parental leave. Employees were asked to indicate for each arrangement whether they (had) used it (0 = 'no', 1 = 'yes'). Of these arrangements, two were issued by law (part time work and parental leave); subsidized childcare arrangements were arranged through collective labor agreements, and flextime was the most frequently offered arrangement in the Netherlands (Den Dulk, 2001; Remery, Van Doorne-Huiskes, & Schippers, 2002).

WH interaction was measured with the 'Survey Work-home Interaction NijmeGen – SWING' (Geurts et al., 2005): negative WHI was measured with 8 items (α = .73; e.g., "How often does it happen that your work schedule makes it difficult to fulfill domestic obligations?"); positive WHI consisted of 5 items (α = .80; e.g., "How often does it happen that after a pleasant working day/week, you feel more in the mood to engage in activities with your spouse/family/friends?"); 3) negative HWI was measured with 4 items (α = .74; e.g., "How often does it happen that you have difficulty concentrating on your work because you are preoccupied with domestic matters?"); and 4) positive HWI consisted of 5 items (α = .84; e.g. "How often does it happen that after spending a pleasant weekend with your spouse/family/friends, you have more fun in your job?"). For all four scales, answer alternatives were 'never' (= 0), 'sometimes' (= 1), 'often' (= 2), and 'always' (= 3), with higher mean scores reflecting higher levels of negative WHI/HWI and of positive WHI/HWI.

Parental status. Since, in the Netherlands only parents of young children are eligible to receive financial childcare compensation and to use parental leave, we distinguished between workers without children living in the household (= 0), parents of older children (≥12 years old) living at home (= 1), and parents of young children (<12 years) living at home (= 2).

Table 4.1. The 18 work-home culture items and their factor loadings on the two general dimensions 'support' and 'hindrance' (N = 1,179)

		WH Culture – 'Support'	WH Culture – 'Hindrance'
1.	Managers in this organization are generally considerate towards the private life of employees	*.53*	-.31
2.	In this organization, people are sympathetic towards care responsibilities of employees	*.51*	-.35
3.	In this organization it is considered important that, beyond their work, employees have sufficient time left for their private life	*.47*	-.31
4.	This organization is supportive of employees who want to switch to less demanding jobs for private reasons	*.49*	-.36
5.	**My colleagues support employees who want to switch to less demanding jobs for private reasons**	*.61*	-.08
6.	**My colleagues support employees who (temporarily) want to reduce their working hours for private reasons**	*.64*	-.09
7.	**I am comfortable in discussing aspects of my private life with my colleagues**	*.47*	-.03
8.	**My colleagues help me out when I am (temporarily) preoccupied with my care responsibilities**	*.48*	-.06
9.	**My superior supports employees who want to switch to less demanding jobs for private reasons**	*.66*	-.16
10.	**My superior supports employees who (temporarily) want to reduce their working hours for private reasons**	*.67*	-.15
11.	**I am comfortable in discussing my private life with my superior**	*.55*	-.09
12.	To get ahead at this organization, employees are expected to work overtime on a regular basis	-.12	*.70*
13.	**In order to be taken seriously in this organization, employees should work long days and be available all the time**	-.22	*.70*
14.	In this organization employees are expected to put their job before their private life when necessary	-.22	*.67*
15.	Employees who (temporarily) reduce their working hours for private reasons are considered less ambitious in this organization	-.12	*.65*
16.	To turn down a promotion for private reasons will harm one's career progress in this organization	-.15	*.69*
17.	Employees who (temporarily) reduce their working hours for private reasons are less likely to advance their career in this organization	-.10	*.71*
18.	**In this organization it is more acceptable for women to (temporarily) reduce their working hours for private reasons than for men**	-.05	*.40*

Note. Items printed in bold were self developed (see Dikkers et al., 2004); factor loadings printed in italic indicate the dimension (support/hindrance) items refer to. Items 1-4, 12, and 14-17 were adapted from Thompson et al.'s (1999) questionnaire, see text. Items 1-4 represent the sub-dimension organizational support, items 5-8 reflect colleague support, items 9-11 represent supervisor support, items 12-14 reflect time demands, and items 15-18 represent negative career consequences.

Statistical analysis

To test Hypothesis 1 (WH culture will be best characterized by two general dimensions: 'support' and 'hindrance'), we compared the fit of four different factor models in the total research sample (N = 1,179) using Confirmatory Factor Analysis (CFA, Jöreskog & Sörbom, 1996). In *Model 1* ('1-factor structure'), all 18 items of the WH culture measure loaded on one factor. In *Model 2* ('5-factor structure'), a five-factor structure was tested with the first three factors including the items referring to each type of support (from the organization, supervisor, and colleagues, respectively) and the fourth and fifth factor including the items tapping negative career consequences and time demands, respectively. In *Model 3* ('5-1 $_{\text{higher order}}$-factor structure'), the same five-factor structure was tested, but with one higher-order factor on which all five first-order factors were forced to load. *Model 4* ('5-2 $_{\text{higher order}}$ -factor structure') represented the hypothesized model in which the five first-order factors loaded on two higher-order factors, reflecting 'support' and 'hindrance'.

The fit of these four factor models was compared in terms of their Chi-square (χ^2) value. As it is well known that this test is susceptible to sample size, such that in large samples even minor misspecifications may lead to rejection of models (e.g., Bentler & Bonett, 1980; Byrne, 2001; Hu & Bentler, 1998; Marsh, Balla & McDonald, 1988), we also employed a range of other fit indexes to assess model fit. These were the Goodness of Fit Index (GFI), the Non-Normed Fit Index (NNFI), the Comparative Fit Index (CFI), and the Root Mean Square Error of Approximation (RMSEA). Values of .90 and over (for GFI, NNFI and CFI) or .08 and under (RMSEA) signify an acceptable fit (Byrne, 2001). As can be concluded from the results of the CFA given in Table 4.2, Model 4 representing the proposed 2-factor structure (five work-home culture dimensions loading on two higher-order factors) fitted the data best. To further validate the proposed 2-factor structure of WH culture and the equivalence of parameter estimates (i.e., factor loadings, factor covariances and item error variances) across samples, gender and parental status, we employed multi-group confirmatory factor analysis (CFA).

Table 4.2. Comparison of four factorial models of the work-home culture measure (see Table 4.1) in the total research sample (N = 1,179)

Model	χ^2	*df*	*GFI*	*NNFI*	*RMSEA*	*CFI*
M1 (1-factor model)	4840.20	135	.63	.43	.20	.50
M2 (5-factor model)	785.05	125	.94	.91	.06	.93
M3 (5-1 $_{\text{higher order}}$-factor model)	820.07	130	.93	.91	.07	.93
M4 (5-2 $_{\text{higher order}}$-factor model)	616.40	126	.94	.94	.06	.95

Note. GFI = Goodness of Fit Index; NNFI = Non-Normed Fit Index; RSMEA = Root Mean Square Error of Approximation; CFI = Comparative Fit Index

Subsequently, a WH culture-support score was calculated by averaging the scale scores on organization's, supervisor's, and colleagues' support, with higher scores indicating a more supportive WH culture. Also a WH culture-hindrance score was calculated by averaging the scale scores on negative career consequences and time demands, with higher scores indicating a more obstructing WH culture. Hypotheses 2a to 2c (women [2a], parents [2b], and workers from 'Public' [2c] will report higher levels of support and lower levels of hindrance than their counterparts) were tested by means of a MANOVA with the two WH culture dimensions ('support' and 'hindrance') as criteria, and gender, parental status and organization as factors.

Hypothesis 3 (employees who report higher levels of support and lower levels of hindrance are more likely to use WH arrangements) was tested in a series of logistic regression analyses. This type of analysis is especially suitable for dichotomous response variables, such as the variables representing the use of the four WH arrangements examined here (Menard, 1995). For each WH arrangement a separate analysis was conducted, with support and hindrance as well as the interaction between these dimensions as the predictor variables. Following Cohen, Cohen, Aiken and West (2003), the interaction terms were computed on the basis of the centered main variables. In addition, gender, parental status (only for flextime and part time work) and organization were controlled for.

To test Hypothesis 4a to 4d (employees who report higher levels of support and lower levels of hindrance will experience less negative WHI [4a] and HWI [4b] and more positive WHI [4c] and HWI [4d]), four separate regression analyses were performed with the two WH culture dimensions as well as their interaction as independent variables and each component of WH interaction as dependent variable. Again, gender, parental status and organization were controlled for.

4.3 Results

Factor structure of WH culture

To further examine whether the two-dimensional structure of WH culture varied as a function of organization, gender and parental status, three multi-group CFAs were performed. Although the χ^2-difference relative to the change in the number of *df* was statistically significant when factor loadings, factor covariances and error variances were set invariant across the three organizations ($\Delta\chi^2_{(df = 76,\ N = 1{,}179)} = 113.52$, $p < .01$), values for the other fit indices showed that these parameters were highly similar for all three organizations (NNFIs and CFIs for both the unconstrained and constrained model were all .91; RMSEAs were all .06). Constraining the factor loadings, factor covariances and item error variances to be equal across men and women ($\Delta\chi^2_{(df = 38,\ N = 1{,}179)} = 52.05$, *ns)*, and across the three groups with and without (young) children ($\Delta\chi^2_{(df = 76,\ N = 1{,}179)} = 82.36$, *ns)* did not result in a deterioration in fit. These results indicate that the 2-factor structure of WH culture distinguishing between 'support' and 'hindrance' was invariant across organizations, gender and parental status (Hypothesis 1 supported). Table 4.1 presents the factor loadings of the 18 WH culture items on the two general WH culture dimensions.

Descriptive statistics of central research variables

Table 4.3 presents the means, standard deviations and intercorrelations of the two WH culture dimensions, the use of four WH arrangements, and four types of WH interaction. On average, workers within the total sample ($N = 1{,}179$) scored moderately on WH culture-support ($M = 3.39$, $sd = 0.58$, $\alpha = .67$) and WH culture-hindrance ($M = 3.22$, $sd = 0.80$, $r_{\text{(between 'career consequences' and 'time demands')}} = .50$, $p < .001$). Flextime was used far more frequently (76%) than part time work (19%). Of the respondents having young (≤12 yrs) children living in the household ($N = 414$), 30% and 38% used subsidized childcare and parental leave, respectively. Average scores on the four WH interaction were generally low, with the level of negative WHI ($M = .85$) exceeding the level of negative HWI (M = .47, $t_{(df = 1,\ N = 1{,}179)} = 32.32$, $p < .001$, indicating that negative influences more often originated from work than from home), and the level of positive HWI ($M = 1.09$) exceeding the level of positive WHI ($M = .80$, $t_{(df = 1,\ N = 1{,}179)} = 16.30$, $p < .001$, signifying that positive influences originated more often from home than from work.

The two WH culture dimensions were substantially related ($r = -.39$, $p < .001$), demonstrating that high (low) support was associated with low (high) hindrance. Regarding

the other correlations, the correlation between positive WHI and positive HWI stood out (r = .63, p < .001). Therefore, we conducted a post-hoc CFA (Jöreskog & Sörbom, 1996), comparing a 1-factor (with the items of both scales loading on one latent factor) and a 2-factor model (with the items of both scales loading on two separate latent factors). The 2-factor model fitted the data well ($\chi^2_{(df = 19,\ N = 1{,}179)}$ = 142.40, GFI = .97, NNFI = .96, CFI = .97, and RMSEA = .08), and better than the 1-factor model ($\Delta\chi^2_{(df = 1,\ N = 1{,}179)}$ = 555.98, p < .001), indicating that the two types of positive WH interaction were, albeit related, empirically non-identical constructs.

Table 4.3. Means (M), standard deviations (SD) and intercorrelations of all research variables (N = 1,179)

Variables	*M*	*SD*	Range	1	2	3	4	5	6	7	8	9	10
1. Gender[$]	1.69	-	1-2	-									
2. WH culture 'support'	3.39	0.58	1-5	-.10**	-								
3. WH culture 'hindrance'	3.22	0.80	1-5	.00	-.39**	-							
4. Use of flexible work times	0.76	-	0-1	.03	.14**	-.09*	-						
5. Use of part time work	0.19	-	0-1	-.47**	.17**	-.06	.06	-					
6. Use of subsidized childcare[$$]	0.30	-	0-1	-.40**	.14*	.04	.05	.38**	-				
7. Use of parental leave[$$]	0.38	-	0-1	-.33**	.14*	-.25**	.08	.45**	.16**	-			
8. Negative WHI	0.85	0.45	0-3	.10**	-.34**	.40**	-.02	-.14**	-.12*	-.08**	-		
9. Positive WHI	0.80	0.65	0-3	-.04	.10**	.02	.03	-.04	-.14*	-.07*	.13**	-	
10. Negative HWI	0.47	0.40	0-3	-.06	-.01	.01	.06*	.09**	.18**	.07*	.23**	.09**	-
11. Positive HWI	1.09	0.83	0-3	-.13**	.10**	-.03	-.03	.11**	.04	.01	.03	.63**	.11**

Note. Variables 4 to 7 are dichotomized, therefore their means represent percentages

$: 1 = women, 2 = men; descriptive statistics of 'parental status' can be obtained from the first author

$$: The means, standard deviations and correlations involving this variable were based on the participants having young children (<12 years old, $N = 414$) and not on the full sample

*$p < .01$, **$p < .001$

Associations of WH culture with demographic and organization characteristics

Table 4.4 presents the results of the MANOVA examining the relationships of WH culture-support and WH culture-hindrance with gender, parental status and organization. Gender was not significantly related to WH culture ($F_{(df = 2, N = 1,179)} = 1.60$, *ns*) indicating that men and women did not differ in their perceptions of WH culture (Hypothesis 2a not supported). Although parental status had a significant main effect on WH culture (multivariate $F_{(df = 4, N = 1,179)} = 2.55$, $p < .05$), its main effect on each separate WH culture dimension was not significant (univariate $F_{\text{support }(df = 2, N = 1,179)} = 1.60$, *ns*; $F_{\text{hindrance }(df = 2, N = 1,179)} = 2.26$, *ns*), signifying that parents did not perceive the WH culture as more supportive or less obstructing than workers without children (Hypothesis 2b not supported). However, organization was significantly associated with both the support dimension (univariate $F_{(df = 2, N = 1,179)} = 16.74$, $p < .001$) and the hindrance dimension (univariate $F_{(df = 2, N = 1,179)} = 66.31$, $p < .001$) of WH culture (multivariate $F_{(df = 4, N = 1,179)} = 33.99$, $p < .001$). In accordance with Hypothesis 2c, post-hoc Bonferroni tests revealed that workers from the Public organization reported higher levels of WH culture-support ($M = 3.55$) and lower levels of WH culture-hindrance ($M = 2.68$) compared to workers from the two private organizations, Finance ($M_{\text{support}} = 3.43$, and $M_{\text{hindrance}} = 3.25$) and Plant ($M_{\text{support}} = 3.19$, and $M_{\text{hindrance}} = 3.52$).

Table 4.4. MANOVA with WH culture (support and hindrance) as dependent variables and gender, parental status and organization as factors

	MANOVA	ANOVA		
		WH culture		
		Support	Hindrance	
	$F^{\$}$	F	F	df
Gender	1.60	3.20	0.32	1
Parental status	2.55*	1.60	2.26	2
Organization	33.99***	16.74***	66.31***	2

Note. $ = Wilks' Lambda multivariate *F*-value

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

Associations of WH culture with the use of WH arrangements

The results of the logistic regression analyses with WH culture-support and WH culture-hindrance as independent variables and the use of the four WH arrangements as the dependent variables are presented in Table 4.5. Gender, organization, and parental status (only for flextime and part time work) were controlled for. Of the three predictor variables, only WH culture-support explained a significant part ($B = .48$, $p < .001$) of the variance in the use of flextime. This indicated that employees who reported higher levels of WH culture-support were more likely to use flextime. Concerning the use of part time work, all three predictor variables were significantly related to the use of this WH arrangement: employees were more likely to work part time, the more supportive they perceived the WH culture ($B = .63$, $p < .001$) and, contrary to our hypothesis, the more obstructing they perceived the WH culture ($B = .39$, $p < .05$). To enable an interpretation of the significant interaction effect between support and hindrance ($B = -.22$, $p < .05$), we followed a median split procedure for each WH culture dimension and calculated the mean scores for all possible four combinations of low and high support and low and high hindrance. The use of part time work appeared to be highest when support was high and hindrance was low. Regarding the use of childcare (only based on data from parents of young children, $N = 414$), only WH culture-support explained a significant part of the variance in this concept ($B = .56$, $p < .05$), indicating that workers perceiving the WH culture as more supportive were more likely to use subsidized child care. None of the predictor variables was significantly related to the use of parental leave.

Table 4.5. Results of four logistic regression analyses for the effects (regression coefficients, Bs) of the WH culture dimensions (support and hindrance) on the use of four WH arrangements

	The use of WH arrangements			
	Flextime	*Part time*	*Childcare*[$]	*Parental leave*[$]
WH culture 'support'	.48***	.63***	.56*	-.03
WH culture 'hindrance'	-.13	.39*	.16	.02
Support*Hindrance	.03	-.22*	-.12	.07
-2 LL $^{(total)}$	1232.64	743.04	406.09	345.67
$R^2_{(total)}$	.06***	.48***	.28***	.52***

Note. Gender, organization, and parental status (only for flextime and part time work) were controlled for in these analyses.[$] The use of childcare and parental leave was examined for parents of young (<12 yrs) children only ($N = 414$); *$p < .05$, **$p < .01$, ***$p < .001$

In sum, Hypothesis 3 that workers who report higher levels of WH culture-support and lower levels of WH culture-hindrance are more likely to use WH arrangements was supported for the support dimension and the use of three out of four WH arrangements, namely flextime, part time work and subsidized childcare. WH culture-hindrance was only associated significantly with the use of part time work, but not in the hypothesized direction: it appeared that those reporting higher hindrance were more likely (rather than less likely) to work part time.

Associations of WH culture with WH interaction

Table 4.6 presents the results of four separate regression analyses, each with the two WH culture dimensions and their interaction as predictor variables, and with gender, organization, and parental status as control variables. In each analysis, one of the four WH interaction components served as the dependent variable. Regarding negative WHI, both support, hindrance, and their interaction contributed significantly to the variance explained. In accordance with Hypothesis 4a, workers experienced less interference from work, the more they perceived the WH culture as supportive (β = -.20, p < .001) and less they perceived it as obstructing (β = .27, p < .001). To enable an interpretation of the weak but significant interaction effect (β = -.06, p < .05), a median split procedure for each WH culture dimension revealed that the level of interference was low especially when support was high and hindrance was low. In contrast with negative WHI, none of the predictor variables was significantly related to negative HWI (Hypothesis 4b not supported). With respect to positive WHI and positive HWI, only WH culture-support was related significantly (β = 0.14, p < .001, and β = 0.08, p < .05, respectively), indicating that workers who perceived the WH culture as more supportive, experienced higher levels of positive interaction between work and home (Hypotheses 4c and 4d supported).

Table 4.6. Results of four regression analyses for the effects (standardized regression coefficients, βs) of the WH culture dimensions (support and hindrance) on the four components of WH interaction

	Work-Home Interaction			
	Negative WHI	Negative HWI	Positive WHI	Positive HWI
WH culture 'support'	-.20***	-.02	.14***	.08*
WH culture 'hindrance'	.27***	.06	.05	.06
Support*Hindrance	-.06*	-.02	.00	-.02
F	41.09***	2.89**	2.84**	8.39***
R^2	.22	.02	.02	.06

Note. Gender, organization, and parental status were controlled for in these analyses

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

4.4 Discussion

Studying the existence and psychological meaning of WH culture is a challenging endeavor in research into the WH interface. Pioneering work has been undertaken by Thompson and co-workers (1999; Thompson & Prottas, 2006) and Allen (2001). Thompson provided a definition of WH culture and a first survey-based operationalization, which was further elaborated upon by Allen (2001). As often is the case when studying a relatively new field, these early studies give rise to some conceptual and methodological concerns, for instance, with respect to construct validity and measurements issues.

In a first effort to overcome such limitations, Dikkers et al. (2004; Chapter 3) provided some evidence for a 2-factor structure of WH culture: 'support' reflecting employees' perceptions of organization's, supervisor's, and colleagues' responsiveness to work-family issues and to the use of WH arrangements; and 'hindrance' reflecting employees' perceptions of negative career consequences and organizational time demands that may prevent them from using WH arrangements. However, given the design of this 2004 study, it remained unclear whether this 2-factor structure was invariant across different organizations. Therefore, one purpose of the current study was to find out whether the 2-factor structure of WH culture was robust across organizations as well as across gender and parental status. Another purpose of this study was to examine the associations of these two WH culture dimensions with demographic and organization characteristics, the use of WH arrangements, and four dimensions of WH interaction.

Factor structure and typology of WH cultures

The results of CFA lend credit to the notion that WH culture, as measured with the 18-item questionnaire (Table 4.1), is indeed represented by the two general dimensions 'support' and 'hindrance', and this 2-factor structure of WH culture was invariant across the three organizations, gender and parental status. These results underline the robustness of this 2-factor structure of WH culture across a wide variety of workers.

Associations of WH culture with demographic and organization characteristics

Regarding the demographic characteristics, our results revealed that neither men and women nor parents and non-parents differed in their perceptions of WH culture. In accordance with our expectations, workers from the public organization perceived the WH culture as more supportive and less obstructing as compared with workers from the two private organizations. This finding suggests that organizations that are owned or controlled by the Dutch

government may be more active in assisting their employees with care-giving responsibilities than are companies that are not under direct control of the Dutch government. Thus there may be a distinct difference in WH culture between public and private organizations.

WH culture and the use of WH arrangements

As regards the use of WH arrangements, the level of support seems to be the most crucial WH culture component. In accordance with our expectations, employees who perceived higher levels of organization's, supervisor's and colleagues' responsiveness to work-family issues and to the use of WH arrangements, were considerably more likely to use flextime, part time work, and subsidized child care. Employees' perceptions of negative career consequences and high time demands did not seem to prevent them from using certain facilities, as WH culture-hindrance was not negatively associated with the use of WH arrangements. Hindrance was only related to the use of part time work, but not as an obstructing factor that may have prevented workers from working part time. In fact, part time workers reported higher (rather than lower) levels of hindrance. A plausible explanation for this finding is that one's judgments of WH culture-hindrance is affected by one's actual experiences with the use of part time work. Whereas part time workers had the opportunity to experience the degree to which their organization factually endorses this facility, workers not using this facility may easily judge this aspect more positively. The significant interaction effect between support and hindrance on part time work showed that, as expected, working part time occurs most likely in a WH culture that is characterized by high support and low hindrance. Unexpectedly, WH culture was not significantly related at all to the use of parental leave. Indeed, the use of parental leave was most strongly predicted by gender (with mothers using this facility much more than fathers).

WH culture and WH interaction

Also regarding work-home interaction, the level of support was a crucial WH culture dimension. As hypothesized, employees who perceived higher levels of organization's, supervisor's and colleagues' support regarding work-family issues and the use of WH arrangements, experienced less interference from work, more positive influence from work, and, although to a lesser extent, more positive influence from home. Perceived hindrance was only, albeit strongly, related to negative WHI, indicating that, as hypothesized, employees experiencing more negative career consequences and higher time demands, experienced more interference from work. The significant interaction effect between support and hindrance on

negative WHI revealed that the level of interference from work was lowest in a WH culture that was characterized by high support and low hindrance.

Limitations and suggestions for future research

Five limitations and suggestions for future research should be mentioned. First, the response rates of the three organizations incorporated in this study were moderately low (39% to 42%), which is in line with the findings in Baruch's (1999) review of response rates in academic studies. Fortunately, the three samples derived were representative of the companies' population as regards gender and age. However, our data did not allow us to perform a more detailed response/non-response analysis. Therefore, we cannot exclude the possibility that selective non-response resulted in a biased sample.

A second issue concerns our measure of the use of WH arrangements. Participants indicated whether they used or had used a specific arrangement, reflecting not only present but also possible past use of such arrangements. Thus, it may be that past use of WH arrangements has affected current judgments of the WH culture ("reverse causation") rather than the other way around. Post hoc analysis revealed that of all participants reporting that they (had) worked part time, 90% currently worked part time (similar tests could not be performed for the other three arrangements), indicating a low discrepancy between past and present use of this facility in the present study. Nevertheless, for future research it is recommended to differentiate between the actual and previous use of WH arrangements.

Third, our study relied exclusively on self-report measures, which might have resulted in an overestimation of the associations among the variables due to common method variance. However, the fact that some relationships were found while others were not, argues against the influence of common method variance in our study. Furthermore, by demonstrating that using self-reports does not guarantee finding significant results, and that monomethod correlations are not by definition higher than multimethod correlations, Spector (2006) concludes that "the popular position suggesting common method variance automatically affects variables measured with the same method is a distortion and oversimplification of the true state of affairs" (p. 221). All in all, we do not believe that the exclusive use of self-reports severely biased our findings, although the use of more 'objective' indicators of, for instance, WH culture and the use of WH arrangements could provide interesting insights in future research.

A fourth issue that should be discussed is our conceptualization of WH culture as the shared assumptions, beliefs, and values regarding the extent to which an organization supports

and values the integration of employees' work and private lives (Thompson et al., 1999). This definition might suggest that, within a given organization, there is only one WH culture. It is likely, however, that WH culture may vary within organizations, for instance, across departments and work groups. This interpretation is supported by the fact that two of our three WH culture-support measures (i.e., supervisor and colleague support) pertain to department-level characteristics. In this sense, it might be better to reconceptualize WH culture as a phenomenon that does not necessarily apply to the organization as a whole, but rather to particular homogenous subgroups within that organization: departments, work groups, teams, and so on.

Finally, the use of a cross-sectional design does not allow us to make any causal inferences about the relations among WH culture, the use of WH arrangements and WH interaction. Therefore, different interpretations of the same finding were plausible. A longitudinal design may enable us to investigate and compare the plausibility of alternative causal pathways connecting WH culture with the use of WH arrangements and WH interaction (e.g., do workers profit from a more supportive and less obstructing culture in terms of less interference from work, and/or does low interference lead to more favorable perceptions of the two WH culture dimensions?; see also Taris & Kompier, 2003). If longitudinal research reveals that workers may profit from a more supportive and less obstructing WH culture in terms of a higher utilization of, for instance, part time work and less interference from work, this would have important practical implications for organizations.

Contributions and implications of this study

We believe that, despite its limitations, the current study contributes to previous research on WH culture in at least two regards. First, we have provided substantial support for a 2-factor structure of a (previously developed, Dikkers et al., 2004) WH culture measure that differentiates between 'support' and 'hindrance' regarding work-family issues and the use of WH arrangements. This 2-factor structure appeared to be robust across three different organizations, gender and parental status. Hence, the 18-item questionnaire, for the first time fully presented in the current study (see Table 4.1), seems to be a reliable tool to characterize companies' WH culture across a wide variety of workers. Preliminary support for the validity of these two WH culture dimensions is that they both showed significant relationships with organization characteristics, the use of WH arrangements, and WH interaction. It was shown

that WH culture differed in terms of higher support and lower hindrance in the public organization from that in the private companies.

In general, the support dimension of WH culture seemed to be more crucial than the hindrance dimension in explaining the use of WH arrangements (flextime, part time work and childcare) and the experience of WH interaction (negative WHI, and positive WHI and HWI). However, in a WH culture typified by high support and low hindrance, workers were most likely to work part time and were better able to prevent negative work experiences from impeding their private life. We could conclude that a supportive WH culture characterized by high responsiveness of the organization, supervisor and colleagues to work-family issues is to be preferred in organizations if employers want to minimize WH interference, optimize positive interaction between work and home and to boost the use of WH arrangements.

Employers are further advised to minimize workers' fear that the use of such arrangements will have negative career consequences and to weaken the link between working long hours and career prospects, as this approach may additionally promote the use of specific WH facilities (e.g., part time work), and prevent WH interference. Although in practice such a change of culture may be difficult to achieve, the present research does suggest the benefit of attempts in this direction in terms of the use of WH arrangements and the work-home interface.

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5

Crossover between work and home in dyadic partner relationships

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Abstract

This study aimed at providing insight into the processes underlying crossover between 'work' and 'home' in dyadic partner relationships. Specifically, we examined to what extent husbands' work demands (work load and overtime hours) and psychological health (fatigue and depressive symptoms) 'cross over' to their wives' home demands (home load) and psychological health. These associations were investigated among three couple groups, based on wives' working hours (i.e., more than 20 hours per week, from 1 to 20 hours per week, and not engaged in paid work) (253 couples in total). All husbands worked for at least 35 hours a week. Three possible crossover mechanisms were hypothesized: (i) time-based, (ii) strain-based, and (iii) empathy-based crossover. The results partially supported mechanisms i and ii: when husbands reported higher work load (mechanism i) and more psychological health complaints (mechanism ii), their wives experienced higher home load. The results further supported mechanism iii that wives' and husbands' psychological health were associated. It is concluded that crossover from husbands to wives may occur through various mechanisms.

5.1 Introduction

Within the European Union, approximately half of all women aged between 16 and 64 years are currently employed, and over two-thirds of the European workforce is living together with a partner (European Foundation for the Improvement of Living and Working Conditions, 2002). As a consequence, the work force is no longer dominated by traditional male breadwinners. The increased prevalence of dual-earner couples implies that it is no longer obvious how paid and unpaid work should be divided between partners. Instead, partners now have to make arrangements about working hours, work schedules and the division of domestic chores, which increases the likelihood of work interfering with family life. Indeed, U.S. statistics indicate that over 45 per cent of employed parents feel that work interferes with their family life (Bond, Thompson, Galinsky, & Prottas, 2003); similar or even higher figures have been reported for Canada and the Netherlands (Duxbury & Higgins, 2001; Geurts, Kompier, Roxburgh, & Houtman, 2003).

Geurts and Demerouti (2003) defined interference between 'work' and 'home' as "a process whereby one's behavior in one domain is hampered by demands from the other domain" (p. 289). This process can originate either from the work or the home domain. In the current study, we focused on work-home interference (i.e., work interfering with home) because it occurs more frequently than home-work interference, and is strongly associated with stress-related outcomes (Byron, 2005; Allen, Herst, Bruck, & Sutton, 2000, for reviews).

Work-home interference has two major components. It may either result from time demands at work that make it difficult to spend time on private matters (i.e., time-based interference, e.g., when long hours at work prevent participation in home activities), and/or from the spill over of strain from one domain to the other (i.e., strain-based interference, e.g., when strain built up at work makes it more difficult to function adequately in the home environment). In line with Cooper (1996), we define strain as distress within the individual produced by stress, i.e., any force that pushes a psychological or physical factor beyond its range of stability.

Although researchers have gathered ample evidence about the impact of work-related time demands and strain on one's functioning (behavior) in the home domain, much of this research has studied this process within individuals (intra-individually), rather than between individuals (inter-individually). This is quite remarkable, considering that work-home interference will often occur within the context of the dyadic partner relationship (cf. Barnett, 1998; Moos, 1984; Westman, 2001). Therefore, besides understanding how - within individuals - work affects ones' own behavior at home (often referred to as work-home

spillover), it is important to understand how - between partners – work demands and psychological health of one partner affect home demands and psychological health of the other. This process is referred to as crossover. The present study was designed to obtain more insight into the crossover of stressors and strain between partners, and into the processes underlying crossover. In order to improve our understanding of these processes, we analysed dyadic data and used the couple as a unit of analysis.

Previous crossover research

Crossover refers to "an inter-individual dyadic process where stress and strain experienced by an individual generate similar reactions in another individual" (Westman, 2001, p. 718). Studies have focused on different variables in the crossover process. Some have concentrated on the crossover of job stressors of partner A to job stressors of partner B (e.g., Burke, Weir, & Duwors, 1980), others have examined the crossover of job stressors of partner A to strain of partner B (among others, Jones & Fletcher, 1996), and yet others have investigated the crossover of strain of partner A to strain of partner B (including Westman & Etzion, 1995, and Westman, Etzion, & Horowitz, 2004). Although some empirical support has been reported for all three types of crossover, Westman's (2001) review shows that previous research in this area is relatively unstructured and suffers from several theoretical and methodological limitations.

One of the major concerns is the disregard of explanatory mechanisms underlying the crossover process. Relatively few studies have addressed the question how workers' job demands and/or strain affect their partners' psychological health. Westman (2001) proposes three mechanisms that may account for the crossover process (see also Westman & Vinokur, 1998). The first mechanism is referred to as a direct empathic crossover. Hereby, it is assumed that crossover takes place between closely related partners who identify with and care for one another. Strain in one partner (e.g., burnout or depression) produces an empathic reaction in the other that increases his or her level of burnout or depression (e.g., Bakker & Schaufeli, 2000; Bakker, Demerouti, & Schaufeli, 2005; Westman & Etzion, 1995, Westman & Vinokur, 1998).

A similar mechanism by which crossover is suggested to operate is emotional contagion, that is, the automatic modeling or imitation of, for instance, facial expressions, postures, and behaviors of others, through which people converge emotionally. However, contagion may also occur via a conscious process of tuning in to the emotions of others (which aligns with the idea of crossover via direct empathetic reactions). Particularly, some studies on the

crossover of burnout and emotions have relied on the idea of (conscious or unconscious) emotional contagion (e.g., Bakker & Schaufeli, 2000).

A second mechanism is referred to as the common stressors mechanism. Common stressors in a shared environment may act as third variables in producing crossover. For instance, Westman and Vinokur (1998) found that common life events affected the crossover process by simultaneously increasing both partners' depressive symptoms. Thus, what appears to be a crossover effect might in fact reflect a spurious relation that is caused by common stressors (e.g., financial strain) that increase strain in each partner separately (see also Vinokur, Price, & Caplan, 1996).

A third mechanism by which one partner's job demands or strain may affect the other's psychological health involves indirect pathways. Westman (2001) proposes that when workers experience high job demands and/or strain, this may increase their partners' strain by behavioral interactions (e.g., by asking too much social support, by displaying negative behavior towards the partner or by negative communication styles). For instance, it has been shown that social undermining behavior (e.g., the expression of negative affect or criticism) mediates the crossover of depression from one partner to the other (Westman & Vinokur, 1998).

The mechanisms postulated by Westman (2001) may explain how workers' job demands and strain may affect their partners' psychological health. However, it is likely that not only psychological health, but also partners' home demands are affected by workers' job demands and strain. When workers are exposed to high job demands (e.g., high work load and overtime hours) and/or arrive home very tired or depressed (psychological health), chances are that they will take less than their fair share of the household chores, leaving these for their spouse. This perspective aligns with a work-psychological perspective, such as action theory (Frese & Zapf, 1994; Taris & Kompier, 2005) that assumes a dynamic interrelation between workers' behavior (i.e., what they actually do at work) and their psychological health status. As far as we know, crossover research has rarely examined the relations between one partners' job demands and psychological health and the other partners' work load at home. Two notable exceptions are studies conducted by Bolger, DeLongis, Kessler and Wethington (1989) and Pittman, Solheim and Blanchard (1996), demonstrating that wives were more likely than their husbands to increase their work effort at home in response to their partner having had a stressful day at work.

The present study

In the present study we examine three possible mechanisms that may account for crossover from husbands to their wives (i.e., unidirectional crossover). We focus on crossover from husbands to wives and not vice versa, because in our study the husbands form a homogeneous group (i.e., they are all employed fulltime in the same organization), whereas the wives' situation is heterogeneous in these regards. Of the three mechanisms under study, the first two mechanisms have rarely been studied. The first (i) is termed here *time-based crossover.* We propose that husbands' time demands at work (e.g., high work load and overtime hours) affect the amount of work load their wives are confronted with in the home domain (i.e., home load) because of husbands' reduced share in domestic chores. Indirect evidence for this proposition comes from Marks (1977), who showed that husbands who are highly committed to their work are less committed to their family and function less well in their familial and marital roles.

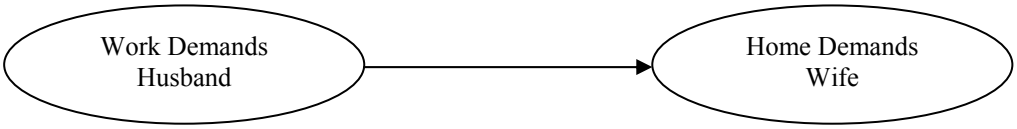
The second proposed mechanism (ii) is termed *strain-based crossover*. We assume that husbands' psychological health (i.e., fatigue and depressive symptoms) affects their wives' home demands (i.e., home load) due to strain that prevents husbands from contributing to domestic tasks. Consistent with this notion, Pittman et al. (1996) found that wives contributed more to housework on days when their husbands reported elevated levels of stress originating from outside the home.

The third mechanism (iii) studied is referred to as *empathy-based crossover* (see Westman, 2001). Based on this principle, one would expect wife's psychological health (e.g., depressed mood) to covary with her husbands' depressed mood due to an empathetic - or sympathetic - reaction of the wife. The three possible crossover mechanisms are graphically presented in Figure 5.1.

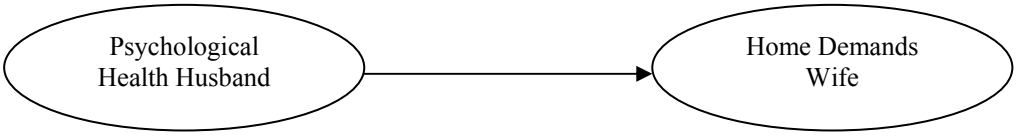
In contrast with previous studies in this field, we study these crossover processes among different types of couples. It seems possible that the degree of crossover from husbands' work demands and psychological health to wives' home demands and psychological health differs as a function of the wives' working hours. Particularly in the country under study (i.e., the Netherlands), a wide variation exists in working hours among women. Of all Dutch employed women, 19% work less than 20 hours per week, 48% work between 20-34 hours per week, and 33% work fulltime (i.e., ≥ 35 hours per week, CBS, 2005). In contrast, 86% of all Dutch employed men work full time. Therefore, the crossover mechanisms were studied among three couple groups that differ in terms of the wife's working hours, that is, (i) male breadwinner couples (husband works fulltime, wife not employed), (ii) female (small) part-

timers (husband works fulltime, wife has a small part-time job, i.e., 1-19 hours per week, cf. CBS, 2005), and (iii) dual-earner couples (husband works fulltime, wife has a large part-time or fulltime job, i.e., at least 20 hours per week).

Mechanism i: Time-based crossover



Mechanism ii: Strain-based crossover



Mechanism iii: Empathy-based crossover

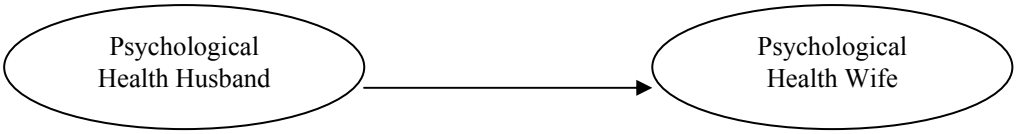


Figure 5.1. The three presumed crossover mechanisms

Research questions and hypotheses

By examining these three crossover mechanisms, we aim to answer three related research questions for the three couple groups: 1) Are husbands' work demands (i.e., work load and overtime) associated with their wives' home demands (i.e., home load) (crossover mechanism i)?, 2) Is husbands' psychological health (i.e., fatigue and depressive symptoms) associated with their wives' home demands (home load) (crossover mechanism ii)?; and 3) Is wives' psychological health (i.e., fatigue and depressive symptoms) associated with their husbands' psychological health (i.e., fatigue and depressive symptoms) (crossover mechanism iii)?

Drawing on the notion of time-based crossover, we expect that when husbands report higher work load and more overtime hours, their wives will report higher home load

(*Hypothesis 1a*). We further expect this association to be stronger in couple groups where wives themselves spend a substantial number of hours on paid work (*Hypothesis 1b*). In traditional male breadwinner couples, wives generally take (almost) full responsibility for domestic matters, whereas in dual earner couples partners often share their domestic chores (SCP, 2000). When husbands in dual earner couples are unable to contribute to domestic tasks and responsibilities due to high work demands, this will directly increase their wives' home demands.

Based on our assumption of strain-based crossover, we expect that when husbands report higher levels of depressed mood and fatigue, their wives will report higher home load (*Hypothesis 2a*). In line with our previous reasoning, we expect this association to be stronger in couple groups where wives spend a substantial number of hours on paid work (*Hypothesis 2b*).

Finally, building on the idea of empathy-based crossover, we expect that when husbands report higher levels of depressive symptoms and fatigue (psychological health), their wives will also report more similar symptoms or complaints (*Hypothesis 3*). There seems no reason to expect that this association would differ among the three couple groups.

5.2 Method

Participants and procedure

Data for the current research were gathered by sending two separate questionnaires, bearing the same code number, to all 1381 employees of the subsidiary of a Dutch multinational and, if applicable, to their partners. Respondents were instructed to complete the questionnaires independently and to return them in sealed separate pre-stamped envelopes to the researchers by mail. A reminder was sent three weeks after the questionnaires had been sent. Of the 1381 employees, 532 employees returned a completed questionnaire (a 39% response rate), as well as 400 partners. In total, 365 couples could be identified (i.e., not all 400 partners could be linked to an employee). Based on three inclusion criteria [i) couples should consist of a male (husband) and a female (wife)[3], ii) the husbands had to be employed at the Dutch subsidiary, and iii) the husbands had to work 36 hours weekly or more], our final research sample comprised 253 couples. Of this sample, the husbands formed a homogeneous subsample in terms of the type of organization they work for and their working hours, whereas the wives varied in these regards.

[3] The terms 'husbands' and 'wives' refer to both married and unmarried cohabiting partners.

Based on wives' working hours, three couple groups were distinguished. In all couple groups, the husbands worked full time (≥ 35 hours per week), but their wives either i) were not employed (i.e., male breadwinner couples, n = 108), ii) had (small) part time jobs (between 1 and 20 hours per week, further referred to as female (small) part-timer couples, n = 81), or iii) had substantial working hours (> 20 hours weekly, so called dual-earner couples, n = 64).

The mean ages of the husbands and wives were 43 years (SD = 8.35, range of 26 to 60 years) and 40 years (SD = 8.3, range of 22 to 59 years), respectively. Of the husbands, 38% had a college or university degree, 32% had completed up to medium-level secondary vocational school, and 30% had completed primary school or lower vocational training. Of the wives, 19% had completed college or university, 47% up to medium-level vocational training, and 34% primary school or lower vocational training. Of all couples, 72% had children living in the household.

Although the response rate was modest (i.e., 39%), the husbands who completed the questionnaire can be considered representative of the total company population with regard to mean age, proportion of males, and type of job contract.[4]

Measures

For all main research variables used in the present study, similar data were collected for husbands and wives. These variables can be categorized as work demands (i.e., work load and number of overtime hours), home demands (i.e., home load), psychological health complaints (i.e., fatigue and depressive symptoms), and control variables (i.e., critical life events and wives' work demands).

Work demands. Work load was measured by seven items adapted from Karasek's (1985) Job Content Questionnaire (JCQ). The original statements were rephrased as questions (e.g., "Do you have enough time to get the job done" (reversed), and "Do you have to work very hard?", 1 = '(almost) never', 2 = 'sometimes', 3 = 'often', 4 = 'always'), with higher scores indicating higher work load. Cronbach's αs were .76 for the husbands, and .81 for the wives. Overtime hours were operationalised by calculating the discrepancy between participants' self-reported contractual weekly working hours and their actual working hours per week.

Home demands. Home load was measured by four items that were developed to parallel the work load items (e.g., "Can you take your time when doing things at home?" (reversed)

[4] Data not shown, but can be obtained from the first author.

and “Do you have to work very hard to get things done at home?”, 1 = ‘(almost) never’, 2 = ‘sometimes’, 3 = ‘often’, 4 = ‘always’), with higher scores denoting higher home load. Cronbach’s αs were .80 for the husbands, and .78 for the wives.

Psychological health complaints. Fatigue was measured using a 10 items of the Fatigue Assessment Scale (FAS, Michielsen, De Vries, & Van Heck, 2003). Two exemplary items are “Mentally, I feel exhausted”, and “I am bothered by fatigue” (1 = ‘never’, 2 = ‘sometimes’, 3 = ‘regularly’, 4 = ‘often’, 5 = ‘always’), with higher scores signifying higher levels of fatigue. Cronbach’s αs were .83 for husbands and .84 for wives. Depressive symptoms were measured with eight items of a Dutch translation of the short version (Iowa form) of the Center for Epidemiologic Studies Depression (CES-D) scale (Kohout, Berkman, Evans, & Cornoni-Huntley, 1995; Radloff, 1977). Each respondent was offered brief statements of feelings or behaviors and was asked to indicate how often s/he felt that way during the last two weeks. Two exemplary items are: “I felt depressed”, and “I felt everything I did was an effort”, 1 = ‘seldom’, 2 = ‘sometimes’, 3 = ‘mostly’), with higher scores representing higher levels of depressive symptoms. Cronbach’s αs were .82 for the husbands and .81 for the wives.

Control variables. Critical life events, representing possible common stressors, were reported by husbands only. They reported for seven life events which are potentially stressful for both partners (i.e., moving or rebuilding the house, serious financial problems, serious marital or family problems, childbirth, marriage or living together, death of a loved one, serious illness of yourself or of loved ones) whether this event had occurred during the past 12 months, and how severe (‘not’, ‘rather’, or ‘very’) they experienced this event. Responses were recoded such that: 0 = no severe events had occurred (i.e., no events had occurred, or the occurred events were not experienced as severe; n = 123), 1 = one rather or very severe event had occurred (n = 76), and 2 = at least two rather or very severe events had occurred (n = 54). In addition, we statistically controlled for wives’ work demands (i.e., work load and number of overtime hours) in the dual earner and female (small) part-time couples.

Analyses

First, descriptive statistics (i.e., means, standard deviations and intercorrelations of the research variables) were calculated for the husbands and the wives in the total research sample. To check whether the three couple groups differed with regard to their working hours, a preliminary ‘couple group’ (male breadwinners vs. female (small) part-timers vs. dual-earners) by ‘gender’ (husbands vs. wives) ANOVA was performed with contractual work

hours as a criterion variable. To identify between-couple differences with regard to husbands' and wives' mean scores on the research variables, similar ANOVAs were performed with work demands, home demands and psychological health as criterion variables. Post-hoc Bonferroni tests were performed to determine which couple groups differed from each other on these variables.

To test *Hypothesis 1a*, a first multi-group analysis was performed using structural equation modeling (Jöreskog & Sörbom, 1996). The associations between husbands' work load and overtime hours and their wives' home load were estimated separately for the three couple groups. Betas reflecting these associations were set equal across the three couple groups. Critical life events were added to the model as a covariate, and wives' work demands (i.e., work load and overtime hours) were partialled out in the female (small) part-time and dual-earner couples. To test *Hypothesis 1b,* the same analysis was performed, except that the betas were allowed to vary across the three couple groups. This allowed us to examine whether the strength of the association between husbands' work demands and wives' home demands differed among the three couple groups.

To test *Hypothesis 2a*, a second multi-group analysis was performed in which the associations between husbands' psychological health complaints and their wives' home load were estimated separately for the three couple groups. Betas reflecting these associations were constrained to be equal across the three couple groups. Again, critical life events and wives' work demands were included as covariates. *Hypothesis 2b* was tested through an identical analysis, except that the betas were set free across the three couple groups.

To test *Hypothesis 3*, a third multi-group analysis was performed in which the association between husbands' psychological health complaints and their wives' psychological health complaints was estimated separately for the three couple groups, whereby betas reflecting this association were set equal across the three couple groups (critical life events and wives' work demands were included as covariates). In order to determine whether the strength of the association between partners' psychological health differed for the three couple groups, the same analysis was performed in which betas were set free across the three couple groups.

For all structural equation analyses, we relied on the Chi-square value (χ^2), as well as the Goodness of Fit Index (GFI), the Comparative Fit Index (CFI), and the Root Mean Square Error of Approximation (RMSEA) to determine the extent to which a model showed good fit. Values of .90 and over (for GFI and CFI) or .08 and under (RMSEA) signify acceptable fit (Byrne, 2001).

5.3 Results

Descriptive results

Table 5.1 presents the means, standard deviations, and zero-order correlations for husbands and wives in the total sample ($N = 253$). The table reveals that husbands' work load was positively related to their wives' home load ($r = .15$, $p < .05$). In addition, husbands' fatigue and depressive symptoms were positively associated with their wives' home load ($r = .15$, $p < .05$, and $r = .18$, $p < .01$, respectively). Partners' fatigue ($r = .27$, $p < .001$) and depressive symptoms ($r = .31$, $p < .001$) were associated strongest of all inter-partner correlations. Within individuals, fatigue and depressive symptoms were correlated even stronger, however ($r = .64$, $p < .001$ for husbands, and $r = .63$, $p < .001$ for wives). Subsequently, these two indices were combined to form one latent factor reflecting psychological health in the structural equation analyses.

Table 5.1. Means, standard deviations, and intercorrelations of the research variables among husbands and wives in the total research sample (N = 253)

Variables	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11
1. Work load Husband	2.65	0.46	-										
2. Overtime hours Husband	3.61	6.25	.20**	-									
3. Home load Husband	2.04	0.63	.22***	-.03	-								
4. Fatigue Husband	1.98	0.55	.25***	-.19**	.20***	-							
5. Depressive symptoms Husband	1.32	0.35	.27***	-.17**	.20**	.64***	-						
6. Work load Wife	2.36	0.56	.10	-.01	.22**	.20*	.11	-					
7. Overtime hours Wife	1.68	3.30	-.02	.08	-.12	.14	.08	.13	-				
8. Home load Wife	2.42	0.64	.15*	.00	.34***	.15*	.18**	.33***	.00	-			
9. Fatigue Wife	2.01	0.56	.08	-.18**	.21***	.27***	.22***	.26**	-.11	.34***	-		
10. Depressive symptoms Wife	1.38	0.38	.05	-.13*	.19**	.29***	.31***	.05	.06	.23***	.63***	-	
11. Critical life events	0.73	0.79	-.04	-.01	.19**	.21***	.20**	.15	.07	.01	.06	.10	-

Note. * = $p < .05$, ** = $p < .01$, *** = $p < .001$.

The preliminary ANOVA revealed that, as would be expected, wives in the (small) part-time couples worked on average less hours per week than dual-earner wives ($F(1, 145) = 153.16$, $p < .001$). Moreover, husbands in male breadwinner couples worked more hours per week than husbands in the other two couple groups ($F(2, 241) = 13.10$, $p < .001$). Table 5.2 presents the means and standard deviations of the research variables for husbands and wives in the three couple groups.

ANOVA and post-hoc Bonferroni tests revealed that wives in (small) part-time couples experienced lower work load ($F(1, 142) = 16.86$, $p < .001$) and worked less hours overtime ($F(1, 142) = 4.34$, $p < .05$) than dual-earner wives.

Table 5.2. Mean scores and standard deviations of husbands and wives within the three couple groups on work demands, home demands, and psychological health (N_{total} = 253 couples)

		1) Male breadwinners (N = 108)		*2) Female (small) part-timers* (N = 81)		*3) Dual-earners* (N = 64)	
Variables		*M*	*SD*	*M*	*SD*	*M*	*SD*
Work load	Husbands	2.65	0.48	2.68	0.41	2.60	0.49
	Wives	-	-	2.21[3]	0.56	2.57[2]	0.48
Overtime hours	Husbands	3.79	6.84	3.62	5.71	3.31	6.05
	Wives	-	-	1.00[3]	2.18	2.57[2]	4.21
Home load	Husbands	2.04	0.64	1.97	0.61	2.11	0.65
	Wives	2.36	0.67	2.45	0.62	2.48	0.63
Fatigue	Husbands	1.99	0.54	1.98	0.60	1.96	0.51
	Wives	2.07	0.65	1.96	0.51	1.97	0.45
Depressive symptoms	Husbands	1.32	0.34	1.31	0.35	1.33	0.38
	Wives	1.43	0.41	1.31	0.31	1.39	0.39

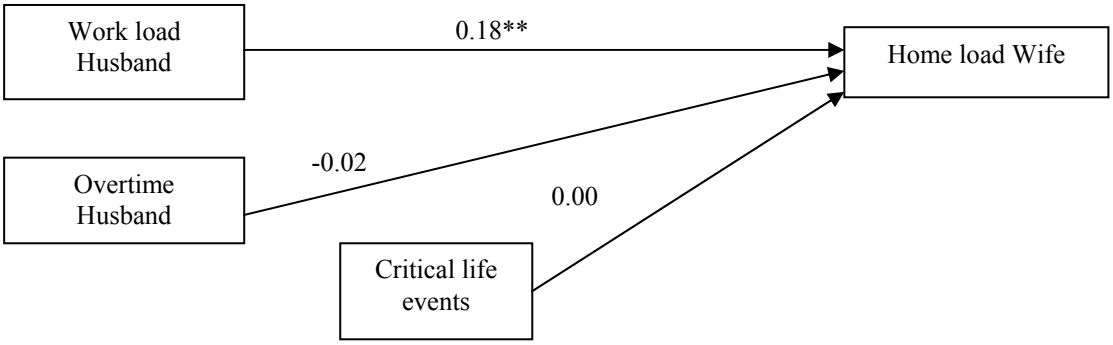
Note. 1 = husbands/wives differ significantly from those in the male breadwinner couples; 2 = husbands/wives differ significantly from those in the female (small) part-time couples; 3 = husbands/wives differ significantly from those in the dual-earner couples

Testing time-based crossover from husbands' work demands to their wives' home demands

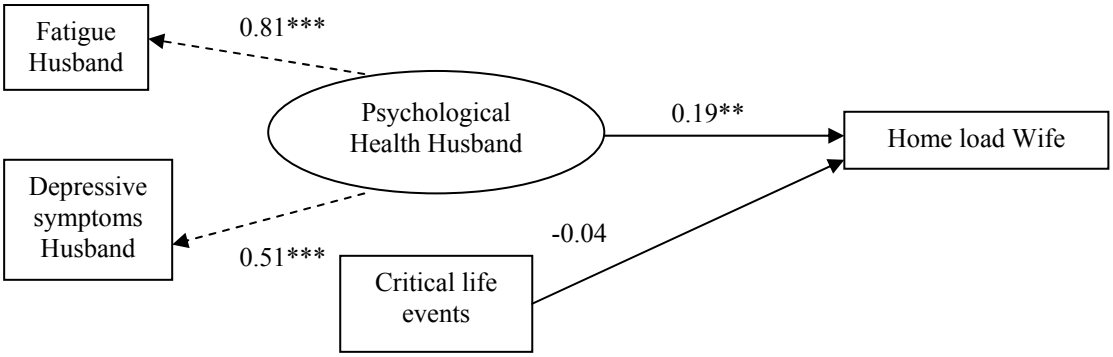
The associations between husbands' work demands and their wives' home demands are presented in Figure 5.2a, with lines representing standardized beta coefficients.

This model provided a good fit ($\chi^2_{(df = 12,\ N = 253)} = 10.20$, $p > .05$; GFI = 0.98; CFI = 1.00; RMSEA = 0.00). In support of time-based crossover, husbands' higher work load was accompanied by wives' higher home load ($\beta = .18$, $p < .01$). Contrary to our expectations, husbands' overtime hours were not related to their wives' home demands (i.e., home load). Critical life events were neither associated with wives' home demands. Thus, the results provided partial support for the proposed time-based crossover between husbands and their wives, that is, husbands' work load seems to 'cross over' to their wives' home load (*Hypothesis 1a* partially supported). When βs were set free across the male breadwinners, the female (small) part-timers, and the dual-earners, we did not observe an improved fit of the model ($\Delta\chi^2_{(df = 4,\ N = 253)} = 6.69$, n.s.), indicating that husbands' work demands were associated with their wives' home demands similarly in the three couple groups (*Hypothesis 1b* not supported).

a) Time-based crossover



b) Strain-based crossover



c) Empathy-based crossover

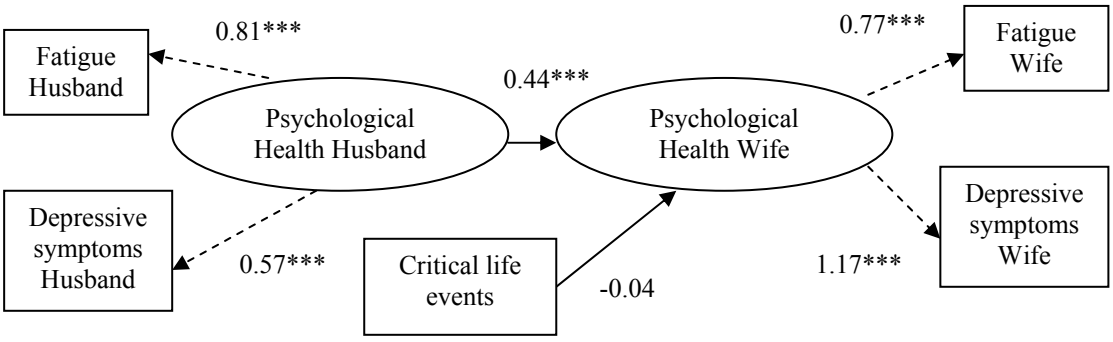


Figure 5.2. Structural equation models of the three crossover mechanisms. The values along the solid paths are betas, and the values along the dotted lines are factor loadings.

Testing strain-based crossover from husbands' psychological health to their wives' home characteristics

The associations between husbands' psychological health and their wives' home demands are presented in Figure 5.2b. The model reflecting the strain-based crossover showed a good fit ($\chi^2_{(df = 14,\ N = 253)} = 9.11$, $p > .05$; GFI = 0.98; CFI = 1.00; RMSEA = 0.00). In support of *Hypothesis 2a*, wives reported higher home load when their husbands reported higher levels of depressive symptoms and fatigue ($\beta = 0.19$, $p < .01$). Contrary to our expectations, critical life events were not associated with wives' home demands. Thus, the results partially supported the strain-based crossover mechanism, that is, husbands' psychological health complaints seem to 'cross over' to their wives' home load (*Hypothesis 2a* partially supported). A second model, in which βs were allowed to vary across the couple groups, did not provide a better fit than the first model ($\Delta\chi^2_{(df = 2,\ N = 253)} = 0.35$, n.s.). This indicates that husbands' psychological health was associated with their wives' home load similarly in the three couple groups (*Hypothesis 2b* not supported).

Testing empathy-based crossover from husbands' psychological health to their wives' psychological health

The association between partners' psychological health complaints is presented in Figure 5.2c. This model, representing empathy-based crossover, provided a good fit ($\chi^2_{(df = 13,\ N = 253)} = 11.01$, $p > .05$; GFI = 0.95; CFI = 1.00; RMSEA = 0.00). In support of *Hypothesis 3*, husbands' psychological health complaints were associated with their wives' psychological health complaints ($\beta = 0.44$, $p < .001$). Critical life events were not associated with wives' psychological health. When βs were set free across the three couple groups, the fit of the model did not improve significantly ($\Delta\chi^2_{(df = 4,\ N = 253)} = 1.22$, n.s.), indicating that husbands' and wives' psychological health was associated similarly in the three couple groups.

5.4 Discussion

The aim of the current study was to gain insight into the processes by which husbands' job demands and psychological health may affect their wives' home demands and psychological health. We postulated two possible crossover mechanisms that have, as yet, gained only limited attention, that is, (i) time-based crossover, whereby husbands' time demands affect their wives' home demands, and (ii) strain-based crossover, whereby husbands' psychological health affects their wives' home demands. A third proposed mechanism, referred to as

empathy-based crossover (iii), is based on the idea that wives' psychological health covaries with their husbands' psychological health through wives' direct empathetic reaction. Contrary to previous crossover studies, these mechanisms were examined in three couple groups that differed with respect to wives' number of working hours (i.e., male breadwinners, female (small) part-timers, and dual-earners), because we expected that crossover effects may depend on wives' working situation.

The crossover mechanisms

The observed positive association between husbands' work load and their wives' home load is consistent with the notion that when husbands work harder at work, their wives also work harder to get things done at home. This supports the postulated process of time-based crossover. We did not find support, however, for the expected association between husbands' overtime hours and their wives' home demands. This implies that wives' work load at home is not affected by their husbands' overtime work. Although a considerable number of husbands worked overtime ($N = 173$) – for the majority of husbands (68%) this concerned only 1-5 hours per week. It may be that within couples partners consider these moderate overtime hours as structural aspect of the husbands' work, and have, therefore, already taken such hours into account in their arrangement and division of domestic chores.

We also found support for the idea of strain-based crossover by showing that in cases where husbands reported higher levels of depressive symptoms and fatigue (lower psychological health), their wives had to work harder in the home situation (higher home load). However, we must not neglect the possibility that the association between husbands' psychological health and their wives' home load is mediated by relevant third variables such as husbands' coping strategies. That is, husbands experiencing decreased levels of psychological health may seek social support as a way of coping. Their wives may react to this coping strategy empathetically by taking over (part of) their husbands' domestic tasks, thereby increasing their own home load.

The idea of empathy-based crossover was supported. When husbands experienced more depressive symptoms and fatigue, their wives also experienced similar psychological health complaints. It is plausible that mediating processes underlie these associations, however. It seems possible that when husbands come home tired or depressed from their work, similar reactions are elicited in their wives through partners' coping strategies or negative behavioral interactions, such as social undermining behavior of the husband, or negative communication styles between partners (e.g., Westman, 2001; Westman & Vinokur, 1998). In order to

examine these mediating processes, studies are needed that follow couples' interactions over time, e.g., by letting both partners fill in a diary during a couple of weeks.

Couple groups

Contrary to our expectations, we did not observe that husbands' job demands and psychological health 'cross over' to their wives' home demands more strongly among dual earners (where partners usually share domestic tasks) than among male breadwinners (where wives usually take already full domestic responsibility). In all couple groups, wives worked harder at home (home load) when their husbands were exposed to a higher work load, and this did not seem to be more detrimental for dual earner wives compared to wives who worked less hours or not at all. An admittedly speculative explanation is that partners in all couple groups have found a stable balance between the tasks they perform at work and those they perform at home. Apparently, this balance is not influenced by the number of hours wives work. In other words, this study's research sample may be comprised of relatively 'healthy couples' that have found a balance between their tasks at work and at home, regardless of the number of hours wives work.

Limitations and suggestions for future research

An obvious limitation of this study is its cross-sectional design. Crossover represents a process that proceeds in time: partner A has a certain amount of X, and over time this has an impact on partner B. As temporal ordering and directionality cannot be studied in the present research, it is possible that the observed associations do not (only) reflect crossover from husbands' work demands and psychological health to their wives' home demands and psychological health, but also the other way around (from wives' home demands and psychological health to their husbands' work demands and psychological health). For example, with regard to the process of time-based crossover, it might be that wives who work very hard in the household, enable their husbands to work harder in their job. However, regarding strain-based crossover it is unlikely that wives' home load affects their husbands' psychological health directly. A suggestion for future research is to employ a full-panel longitudinal design in which (work and home) demands and psychological health of both partners are measured at multiple points in time. At the same time, longitudinal studies are no panacea for all research problems (Taris & Kompier, 2003): causality will remain difficult to pursue, particularly in studies examining phenomena as complex as crossover processes.

A second limitation concerns the fact that 'common' stressors, i.e., critical life events,

were reported by husbands only. Thus, although the critical events examined in our study did not affect the observed associations between husbands and wives, we may not automatically conclude that these events reflect 'joint' stressors. Moreover, it is possible that alternative (unmeasured) common stressors (e.g., interpersonal conflicts with close others) or other third variables (e.g., the number of (young) children living in the household, see Hammer, Allen, & Grigsby, 1997) might have affected the associations between husbands and their wives. The latter variable, i.e., having (young) children, may be of particular importance because 72% of the couples included in our research sample had children who were on average 10.5 years old. Having young, pre-school children may increase both partners' strain and/or home load thereby influencing crossover. A direction for future research is, therefore, to include more of these potential 'third variables' and have them reported by both husbands and their wives.

Thirdly, because the wives in our study formed a heterogeneous group with regard to their employment status, type of organization and number of working hours, we focused on the crossover only from husbands (all working fulltime in the same organization) to their wives. However, regarding the increased labor participation of women, it seems equally important to investigate to what extent wives' work demands and psychological health are associated with their husbands' home demands and psychological health. For instance, husbands' home demands may equally well increase, in cases where their wives are exposed to high time demands in their job setting (time-based crossover) or come home from work in a tired and depressed state (strain-based crossover). A suggestion for future crossover research is to examine crossover processes bi-directionally, that is, not only from husbands to their wives but also from working wives to their husbands.

Theoretical implications

We believe that the present study contributes to current crossover literature in several ways. Firstly, we provided support for three crossover mechanisms, of which two (i.e., time-based and strain-based crossover) have received only limited attention. This study demonstrated that not only wives' psychological health but also their home demands were affected by husbands' work load and psychological health. Although we studied the three crossover mechanisms separately from one another, the proposed mechanisms may operate jointly. Considering the dynamic interplay between (work) behavior (what people actually do) and psychological health within individuals (action theory, Frese & Zapf, 1994; Taris & Kompier, 2005), it is not unlikely that husbands' work demands affect their wives' home demands through husbands' psychological health (thus, time and strain-based crossover processes may operate

in cooperation). Moreover, husbands' psychological health may affect their wives' psychological health through wives' home demands. Thus, what appeared to be empathy-based crossover may be an indirect mechanism mediated by wives' home demands. This assumption is supported by the observed substantial correlation between, for instance, wives' fatigue and the home load wives report ($r = .34$, $p < .001$, see Table 5.1). Alternatively, husbands' psychological health may affect their wives' job demands through wives' psychological health. Examination of the causal association between work characteristics and mental health by De Lange, Taris, Kompier, Houtman & Bongers (2004) has shown that employees experiencing reduced mental health report higher job demands over time. Consequently, wives experiencing high levels of strain resulting from an empathetic reaction to their husbands' high levels of strain may perceive their work load to be higher in time.

In sum, this study aimed at shedding light on the processes underlying crossover between 'work' and 'home' in various types of couples. We conclude that crossover from husbands to wives is exhibited through various mechanisms. That is, husbands' work load and psychological health not only affect their wives' psychological health but also their wives' work load in the home setting, and these associations, interpreted as time-based and strain-based crossover, appeared to be invariant across male breadwinners, female (small) part-timers and dual-earners. We hope these findings will inspire future researchers to further explore crossover processes between 'work' and 'home' within dyadic partner relationships.

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6

Discussion

6.1 Introduction

The aim of this thesis was to contribute to the literature on work-home interference by examining i) its relation to workload in a longitudinal design, ii) its relation to underemphasized organizational characteristics that until now did not receive the proper attention in the research literature, and iii) its impact on partners' (home) demands and psychological health within marital or co-habiting couples. In this chapter we recapitulate our main findings (section 6.2), discuss this research's limitations (6.3), and address the assets of this thesis and relate these to theoretical implications (6.4). Finally, we discuss some practical implications (6.5) of our findings, and present a postscript (6.6).

6.2 Main findings

In the first chapter of this thesis, we distinguished between three unresolved issues or research questions with regard to negative WHI (also referred to as work-home interference): i) how are workload and negative WHI temporally related? (research question 1); ii) is work-home culture related to the use of work-home arrangements and to negative WHI? (research question 2); and iii) do husbands' work demands and psychological health cross over to their wives' home demands and psychological health? (research question 3). We addressed these issues by examining: i) the temporal relationship between workload and negative WHI in a two-wave full-panel study among 828 Dutch police officers (Chapter 2); ii) the associations of WH culture with the utilization of WH arrangements and negative WHI both in a sample of 638 employees from a Dutch financial consultancy firm (Chapter 3) and among 1179 Dutch employees drawn from one public and two private organizations (Chapter 4); and iii) the association between husbands' work demands and psychological health on the one hand and their wives' home demands and psychological health on the other hand among 253 Dutch couples (Chapter 5). A short summary of the results for each of these research questions is presented in Table 6.1. Subsequently, main findings are presented for each research question.

Table 6.1. Characteristics of previous research into negative WHI, associated research questions and main results of this thesis

Characteristics of previous research	**Research questions**	**Results**
1. Little attention for the temporal association between workload and negative WHI	How are workload and negative WHI temporally related?	High levels of time 1 workload are related to increased levels of negative WHI one year later (H1a supported), and high levels of time 1 negative WHI precede higher reports of workload one year later (H1b supported)
2. Few studies examining the association between negative WHI and organizational characteristics	Is work-home culture related to the use of work-home arrangements and negative WHI?	i) Men and women (H2a not supported, Ch. 3 & 4) as well as parents and non-parents (H2b not supported, Ch. 3 & 4) did not differ in their perception of WH culture, whereas workers from a public organization perceived the WH culture as more supportive and less hindering compared to workers in two private companies (H2c supported, Ch. 4); ii) Work-home culture was not related to the use of work-home arrangements in Ch. 3, but a more supportive work-home culture was related to a higher use of flextime, part time work and child care in Ch. 4 (H3 not supported in Ch.3, but supported for work-home culture-support in Ch. 4); and iii) More supportive and less hindering work-home cultures were related to lower levels of negative WHI (H4a supported, Ch. 3 & 4), but not to negative HWI (H4b not supported, Ch. 4). More supportive WH cultures were related to higher levels of positive WHI (H4c supported for WH culture-support, Ch. 4), and to higher levels of positive HWI (H4d supported for WH culture-support, Ch. 4)
3. Conceptualization of negative WHI as an individual phenomenon; little attention for potential crossover between partners	Do husbands' work demands and psychological health cross over to their wives' home demands and psychological health?	Husbands' workload and psychological health were related to their wives' home demands and psychological health through time-based (H5a supported), strain-based (H5b supported), and empathy-based (H5c supported) mechanisms

Research question 1: How are workload and negative WHI temporally related?

In Chapter 2, the temporal relationships between workload and negative WHI (work-home interference) were examined using a two-wave full-panel study among 828 police officers, while controlling for the influence of job and family changes employees experienced in-between measurements. Using hierarchical regression analyses, we tested Hypothesis 1a (high levels of time 1 workload are related to increased levels of negative WHI one year later) and Hypothesis 1b (high levels of time 1 negative WHI precede higher reports of workload one year later).

The regression analyses showed that workload (time 1) was associated with increased levels of negative WHI one year later beyond negative WHI at time 1, and after controlling for participants' gender and age (Hypothesis 1a supported). Thus, participants reporting higher workload (time 1) tended to experience increased levels of negative WHI one year later. In addition, negative WHI (time 1) was associated with increased levels of workload one year later beyond workload (time 1), and after controlling for participants' gender and age (Hypothesis 1b supported). Thus, participants reporting higher levels of negative WHI (time 1) experienced increased levels of workload one year later.

With regard to the influence of job and family changes on the temporal relationship between workload and negative WHI, we found that participants who reported (one or more) family change(s) after the first wave experienced lower levels of negative WHI one year later. Considering the most frequently reported family change (i.e., child(ren) leaving the house), this finding may imply that interference from work is lower once children have left the house. Family changes were not associated with time 2 workload, and job changes reported in-between the waves were not related to either negative WHI or workload one year later.

In sum, Hypotheses 1a and 1b are both supported, indicating that the temporal relationship between workload and negative WHI is reciprocal in nature. These findings imply that workload is not merely an antecedent of work-home interference but also a potential consequence. The results also underscore the importance of distinguishing between different types of causality in the relationships between workload and work-home interference, and indicate that findings obtained in previous cross-sectional research cannot unequivocally be interpreted as reflecting the effect of workload on work-home interference only.

Research question 2: Is work-home culture related to the use of work-home arrangements and negative WHI?

In Chapter 3, the associations between work-home (WH) culture, the utilization of six work-home (WH) arrangements (flexible working times, telecommuting, working from home, part time work, subsidized child-care, and parental leave), and work-home interference were examined in a sample of 638 employees from a Dutch financial consultancy firm. Results of a Confirmatory Factor Analysis in LISREL (CFA, Jöreskog & Sörbom, 1996) showed that WH culture is characterized by five factors (i.e., organization's, supervisor's and colleagues' support, negative career consequences, and time demands), which can be assigned to two higher-order dimensions, that is, support (reflecting the three types of support) and hindrance (representing negative career consequences and time expectations). By crossing these two dimensions four types of WH culture were formed: i) approving WH culture (high support, low hindrance), ii) indifferent WH culture (low support, low hindrance), iii) contradictory WH culture (high support, high hindrance), and iv) obstructing WH culture (low support, high hindrance).

Chi-square tests revealed that women perceived the WH culture as more supportive and less hindering (i.e., more approving) than men. However, when we controlled for part time work, men and women no longer differed in their perceptions of the WH culture (Hypothesis 2a not supported). In addition, parents did not differ from non-parents in their perception of the WH culture (Hypothesis 2b not supported).

Furthermore, (M)ANOVA's showed that favorable (i.e., approving) WH cultures were not associated with higher utilization of either of the six WH arrangements. The only exception was that part-time work was used more frequently in this type of WH culture, but parents of young children were held accountable for this relationship (Hypothesis 3 not supported in Chapter 3). In line with previous studies (see Kinnunen et al., 2005), however, workers experienced lower levels of negative WHI in a more favorable (approving) culture (Hypothesis 4a supported).

In Chapter 4, the associations between WH culture, the use of four WH arrangements (flextime, working part time, subsidized child care, and parental leave) and the four types of work-home interaction (negative WHI, negative HWI, positive WHI, and positive HWI) were examined further among 1,179 Dutch employees drawn from one public and two private organizations. Results of a CFA (Jöreskog & Sörbom, 1996) supported the previous study's finding that two dimensions (support and hindrance) underlie our measure of WH culture. Moreover, this study showed that the two-dimensional structure of WH culture was invariant

across the three organizations, gender and parental status. These findings underline the robustness of the two-dimensional structure of WH culture across a wide variety of workers.

According to a series of (M)ANOVAs, neither men and women nor parents and non-parents differed in their perceptions of WH culture (Hypotheses 2a and 2b not supported). In accordance with our expectations, however, workers from the public organization perceived the WH culture as more supportive and less hindering when compared to workers from the two private organizations (Hypothesis 2c supported). Thus, WH culture seems to be a distinctive difference between these public and private organizations

As regards the use of WH arrangements, logistic regression analyses showed that the level of support seemed to be the most crucial WH culture component. In accordance with our expectations, employees who perceived higher levels of organization's, supervisor's and colleagues' responsiveness to work-family issues and to the use of WH arrangements, were considerably more likely to use flextime, part time work, and subsidized child care. Employees' perceptions of negative career consequences and high time demands did not seem to prevent them from using certain facilities as hindrance was not negatively associated with the use of WH arrangements. Hindrance was only related to the use of part time work, but not as an obstructing factor that may have prevented workers from working part time. In fact, part time workers reported higher (rather than lower) levels of hindrance. This may imply that, whereas part time workers had the opportunity to experience the degree to which their organization factually endorses this facility, workers not using this facility may easily judge this aspect more positively. In addition, a significant interaction effect between support and hindrance on part time work showed that, as expected, working part time occurs most likely in a WH culture that is characterized by high support and low hindrance. WH culture was not significantly related to the use of parental leave. Thus, in Chapter 4, Hypothesis 3 was supported for the support dimension and the use of three out of four WH arrangements (flextime, part time work, and subsidized child care).

With regard to work-home influence, a series of regression analyses demonstrated that support was – again – the crucial WH culture dimension. As expected, a significant interaction effect between support and hindrance on negative WHI revealed that the level of interference from work was lowest in a WH culture that was characterized by high support and low hindrance (Hypothesis 4a supported). WH culture was not significantly related to negative HWI (Hypothesis 4b not supported). Employees who perceived higher levels of support experienced more positive WHI, and - to a lesser extent - more positive HWI (Hypotheses 4c and 4d supported for the support dimension).

In sum, when integrating the findings from the two studies described in Chapter 3 and 4, we can conclude that: i) Men and women (H2a not supported, Chapter 3 and 4) as well as parents and non-parents (H2b not supported, Chapter 3 and 4) did not differ in their perception of WH culture, whereas workers from the public organization perceived the WH culture as more supportive and less hindering compared to workers in the two private companies (H2c supported, Chapter 4); ii) WH culture was not related to the use of WH arrangements in Chapter 3, but a more supportive WH culture was related to a higher use of flextime, part time work and child care in Chapter 4 (H3 not supported in Chapter3, but supported for WH culture-support in Chapter 4); and iii) more supportive and less hindering WH cultures are related to lower levels of negative WHI (H4a supported, Chapter 3 and 4), but not to negative HWI (H4b not supported, Chapter 4), and more supportive WH cultures are related to higher levels of positive WHI (H4c supported for WH culture-support, Chapter 4), and to higher levels of positive HWI (H4d supported for WH culture-support, Chapter 4).

Research question 3: Do husbands' work demands and psychological health cross over to their wives' home demands and psychological health?

In Chapter 5, the association between husbands' work demands (workload and overtime hours) and psychological health (fatigue and depressive symptoms) on the one hand with their wives' home demands (home load) and psychological health on the other hand was examined. We postulated three crossover mechanisms (i.e., time-based, strain-based, and empathy-based) among three couple groups (i.e., male breadwinners, female (small) part timers, and dual-earners). Results of structural equation analyses showed a positive association between husbands' workload and their wives' home load, thereby providing support for a time-based crossover process (Hypothesis 5a supported). In addition, support was found for a strain-based crossover process; in couples where husbands reported higher levels of depressive symptoms and fatigue (lower psychological health), their wives had to work harder at home (higher home load, Hypothesis 5b supported). Finally, evidence was provided in support of an empathy-based crossover process by the finding that when husbands experienced more depressive symptoms and fatigue, their wives also experienced similar psychological health complaints (Hypothesis 5c supported).

Contrary to our expectations, however, we did not observe that husbands' work demands and psychological health 'cross over' to their wives' home demands more strongly among dual-earners (where partners usually share domestic tasks) than among male breadwinner couples (where wives usually take full domestic responsibility). In all couple groups, wives

worked harder at home (high home load) when their husbands were exposed to a higher workload. In sum, Hypotheses 5a-5c (husbands' work demands and psychological health cross over to their wives' home demands and psychological health through time-based, strain-based, and empathy-based crossover mechanisms) received some support.

6.3 Limitations

6.3.1 Self report measures

All four studies included in this thesis used self-report questionnaires as a means to collect data. This may have resulted in an overestimation of the associations among the variables due to common method variance. However, the fact that some expected relationships were found while others were not, argues against the influence of common method variance in our thesis. Furthermore, by demonstrating that using self-reports does not guarantee finding significant results, and that mono-method correlations are not by definition higher than multi-method correlations, Spector (2006) concludes that "the popular position suggesting common method variance automatically affects variables measured with the same method is a distortion and oversimplification of the true state of affairs" (p. 221). In sum, we do not believe that the exclusive use of self-reports severely biased our findings, although the use of more 'objective' indicators of, for instance, demands from the work and home domain could provide interesting insights in future research.

6.3.2 Mainly cross-sectional designs

A second limitation is that of the four studies included in this thesis only one employed a longitudinal design (Chapter 2). This is not uncommon for studies into negative WHI; a recent review of research methods used in work-family research by Casper, Eby, Bordeaux, Lockwood, and Lambert (2007) showed that 89% of the 225 studies included in their review employed a cross-sectional design. Cross-sectional studies are characterized by an inability to make firm inferences about causality. For example, we cannot rule out the possibility that the observed crossover associations described in Chapter 5 do not (only) reflect crossover from husbands' work demands and psychological health to their wives' home demands and psychological health (i.e., 'normal' causation), but also the other way around (from wives' home demands and psychological health to their husbands' work demands and psychological health, i.e., 'reversed' causation). For example, with regard to the supposed process of time-based crossover, it might be that women, who work very hard in the household, enable their husbands to work harder in their job. Studies employing a full-panel longitudinal design in

which all research variables are measured at multiple points in time can shed light on the nature of this causal relationship. At the same time, we must add a critical note concerning the myth that longitudinal studies form a panacea for all research problems (Taris & Kompier, 2003). Causality will remain difficult to pursue, particularly in studies examining as complex dynamics as crossover processes.

6.3.3 Focus on negative WHI (work-home interference)

A third characteristic is that the current thesis primarily focused on negative WHI, with the exception of the study described in Chapter 4 (in this study all four types of work-home interaction were included). As noted before (Chapter 1), workers may also benefit from combining 'work' with 'family' in terms of self-esteem, happiness and health (often referred to as enhancement, facilitation, enrichment, and positive spillover, Carlson, Kacmar, Wayne, & Grzywacz, 2006; Frone, 2002; Geurts et al., 2005; Grzywacz & Marks, 2000; Greenhaus & Powell, 2006). Bakker and Geurts (2004) found support for a dual-process model of work-home interaction whereby job demands (e.g., high work pressure) were most strongly related to exhaustion, which, in turn, was related to negative influence from work, whereas job resources (e.g., job support and career opportunities) were primarily associated with work engagement, which coincided with positive influence from work. These findings suggest that demands and resources originating from the work domain may be related differently to negative and positive influences between work and home. Therefore, future studies may take into account all four types of WH influence (i.e., negative WHI, negative HWI, positive WHI, and positive HWI).

6.4 Assets and theoretical implications

In spite of such limitations, we believe that this thesis contributes to the field of work and organizational psychology in extending the literature on negative WHI by examining i) its relation to workload in a longitudinal design; ii) its relation to underemphasized organizational characteristics; and iii) its impact on partners' (home) demands and psychological health. Here we provide several assets of this thesis and related theoretical implications, again presented per research question.

Question 1: How are workload and negative WHI temporally related?

According to the study described in Chapter 2, workload and negative WHI (work-home interference) are related reciprocally over time. This is in line with the result of the

longitudinal study performed by Demerouti et al. (2004); in their study, work pressure preceded increased levels of WH interference six and twelve weeks later, and WH interference acted as a precursor of elevated work pressure six and twelve weeks later. However, three other longitudinal studies had different results; one (Peeters et al., 2004) found support for only the 'traditional' assumption that workload precedes WH interference across time ('normal' causation). More specifically, in their study cognitive, emotional, and physical demands (indicating qualitative workload) were found to be related to increased levels of WH interference one year later. In contrast, Leiter and Durup (1996) found evidence for only a reversed causal relationship: WH interference predicted work overload three months later. Britt and Dawson (2005) demonstrated cross-sectional relationships between work overload and WH interference, but no temporal relationships.

One possible explanation for these ambiguous findings is the variety in measurements of negative WHI used in these studies. Only the studies by Demerouti et al. (2004) and Dikkers et al. (in press, see Chapter 2 of this thesis) used the same measure of negative WHI (SWING, Geurts et al., 2005). Britt and Dawson (2005) used the index developed by Netemeyer, Boles, and McMurrian (1996). Leiter and Durup (1996) used the measure of Kopelman, Greenhaus, and Connolly (1983), and Peeters et al. (2004) employed a scale developed by De Jonge, Peeters, Hamers, van Vegchel, and Van der Linden (2003). This diversity in measures makes it difficult to compare the results of these studies. In addition, not all measures may have similar psychometric qualities. A validation study by Geurts et al. (2005) has shown that the SWING [employed by Demerouti et al. (2004), and Dikkers et al. (in press, see Chapter 2 of this thesis)] is a highly reliable and valid measure of negative WHI. In conclusion, preferably, future research should use a more universal, reliable, and valid measure of negative WHI. Because of its good psychometric characteristics, the SWING is a major candidate for such a strong measurement.

An alternative explanation for the inconsistent findings may be that these longitudinal studies used different time intervals to examine the association between workload and negative WHI. The lengths of time lags between the waves were six weeks (Demerouti et al., 2004), three months (Britt & Dawson, 2005; Demerouti et al., 2004; Leiter & Durup, 1996) and one year (Dikkers et al., in press; Peeters et al., 2004). Both the six-week and three-month time interval of Demerouti and colleagues (2004) and the one-year interval of the study of Dikkers et al. (in press, see Chapter 2) appeared to be sufficient to find reciprocal associations between workload and negative WHI. A review of 45 longitudinal studies (De Lange et al., 2003) that addressed the relationships between work characteristics and employee health

revealed that in high-quality longitudinal studies (i.e., with a full-panel design and a theory-guided choice for a time lag) the most consistent effects were found for a one-year period. Nevertheless, we may not exclude the possibility that our one-year time lag or the six-week interval chosen by Demerouti and colleagues (2004) deviates from the underlying causal interval which may have resulted in underestimations of the true strength of the causal relationships (Taris, 2000). Therefore, future studies addressing the causality of the relationship between workload and negative WHI are recommended to include more than two waves and to explore different time lags (e.g., 3 months, 6 months, 1 year and 2 years) in order to determine what time interval would be most appropriate to detect the causal effects (De Lange et al., 2004; Hoogendoorn et al., 2002; Taris & Kompier, 2003).

Question 2: Is work-home culture related to the use of work-home arrangements and negative WHI?

In the studies described in Chapter 3 and 4, we developed and investigated a new measure of WH culture. Based upon the measures developed by Thompson et al. (1999), and Allen (2001), we developed an 18–item questionnaire comprised of 5 dimensions: i) organization's support, ii) supervisor's support, iii) colleagues' support, iv) negative career consequences, and v) organizational time demands. In both studies, evidence was provided in support of a more general 2-factor structure of WH culture distinguishing between support (comprised of organization's, supervisor's, and colleagues' support) and hindrance (comprised of negative career consequences, and organizational time demands). Because of the robustness of this two-dimensional structure of WH culture across a wide variety of workers (men and women, parents and non-parents, and workers from one public and two private organizations), we would like to suggest that future researchers employ this measure and replicate these findings in other samples.

Taking together both studies (Chapter 3 and Chapter 4) we did not find unequivocal relations between WH culture and the use of WH arrangements in this thesis. In Chapter 3, in which a sample of 638 employees working at a Dutch financial consultancy firm was employed, WH culture and use of six WH arrangements (flexible working times, telecommuting, working from home, part time work, subsidized child-care, and parental leave) were not related. Only part time work was used more frequently in a more supportive and less hindering WH culture, but parents of young children were held accountable for this association. In Chapter 4, however, in which 1,179 employees from three other Dutch samples were selected (Public, Plant, and Finance), a supportive WH culture was positively associated

with the utilization of flextime, part time work, and subsidized child care. All in all, since the Chapter 4 study is a replication and extension of the Chapter 3 study – and therefore may be regarded as a stronger study with a more robust design – we conclude that there is indeed a relationship between WH culture and the use of WH arrangements.

Furthermore, a supportive WH culture was related to lower levels of negative WHI (Chapter 3 and 4), and higher levels of positive WHI and HWI (Chapter 4). Earlier research supports these findings (Allen, 2001; Anderson et al., 2002; Batt & Valcour, 2003; Eby et al., 2005; Mauno, Kinnunen & Pyykkö, 2005; Thomas & Ganster, 1995; Thompson et al., 1999; Thompson & Prottas, 2005). However, these associations may vary for different subsets of employees. In Chapter 3, for example, we found that the association between a supportive WH culture and utilization of part time work only held for parents of young children.

We believe that research in this field might benefit from an international, cross-cultural perspective. In general, there has been little research assessing the impact of cultural variability on the work-home interface (e.g., Ford, Heinen & Langkamer, 2007). This is of particular importance to this topic, since work-home arrangements offered may vary greatly between countries. Den Dulk (2005) compared the provision of work-family arrangements among four European countries (i.e., the Netherlands, Italy, United Kingdom, and Sweden). In her study, U.K. employers adopted the largest number of work-family arrangements and Swedish employers adopted the smallest number of arrangements. There were also cross-cultural differences in the type of arrangement offered; Dutch employers were the most active regarding childcare provisions, for example. This study supports the idea that the scope of research examining associations between WH arrangements (both provision and utilization), WH culture and the work-home interface should be broadened to include multiple countries.

Question 3: Do husbands' work demands and psychological health cross over to their wives' home demands and psychological health?

Although research on crossover has made a leap during the last decades, there still are several challenges to be examined by future researchers. A current shortcoming is that most crossover studies have only examined crossover of work-home interference from husbands to wives (unidirectional crossover). However, crossover is potentially a bi-directional phenomenon (Westman, 2002). Therefore, future crossover studies might not only concentrate on the potential crossover from husbands' work demands and psychological health on their wives' home demands and psychological health, but also the other way around, for example, from the wives' work demands on husbands' home demands. Westman (2001) suggested a framework

for studying work-family interaction integrating intra-personal spillover and inter-personal crossover. This model is slightly altered and represented in Figure 6.1, and may function as a heuristic framework for such studies.

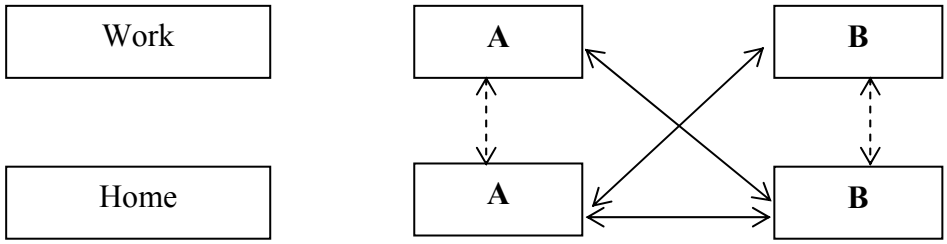

Figure 6.1. Research model for examining work-home spillover and crossover, adapted from Westman (2001)

Note. A = focal person, B = partner. The straight lines represent crossover of work and home between A and B, whereas the dotted lines represent work-home spillover of A or B.

Another challenge for future crossover research is the development of a more integrative theoretical model for studying both work-family spillover and crossover. In the words of Eby et al. (2005), "although we possess a great deal of knowledge about work and family research based on hypothesis testing studies, IO/OB research on work-family issues appears to lack comprehensive theory building or model testing, both of which are necessary to develop a strong and coherent body of research" (p. 183). Byron (2005) makes a similar call for an integrative model that more fully explains the complexity suggested by the results presented in her meta-analytic review of work-family conflict and its antecedents. Possibly, the research model given by Westman (2001), as adapted in Figure 6.1, may assist to fill-in this gap.

A third and related challenge is to better understand the psychological mechanisms underlying the crossover paths in such a model. In Chapter 5 we found evidence in favor of three potential crossover mechanisms underlying the association between husbands' work demands and psychological health, and their wives' home demands and psychological health (i.e., time-based, strain-based, and empathy-based crossover). Future studies need to examine and better understand these and other mechanisms in order to increase our understanding of the crossover process.

It is important to note that crossover – and spillover – should not be studied in a static manner since these processes are dynamic in nature. Because daily schedules for most individuals vary considerably over the course of a week, spillover and crossover within/between work and home are also likely to vary across time (e.g., Ford, Heinen &

Langkamer, 2007). In a recent diary study among 93 academic staff members of a medium-sized Dutch university, Van Hooff, Geurts, Kompier, & Taris (in press) compared a high effort (participants who labeled two of three, three of four or four of five workdays as effortful) and a low effort (participants who considered none or only one workday as effortful) group on, among others, well-being during the workday, in-between successive workdays, and during the weekend days. They found that employees in the high-effort group reported a stronger increase in work-related fatigue during the workday compared to those in the low-effort group. Whereas the two groups did not differ significantly in work-related fatigue at the start of the working day, the high-effort group was more fatigued at the end of the working day. This difference persisted in-between work days and during the weekend days. This study emphasizes the potential importance of also examining (crossover of) negative WHI from a day-to-day perspective, using research methods that can track fluctuations in effort and recovery during the working days and in the weekend, such as diary studies.

6.5 Practical implications

In this section, we present three categories of practical implications related to this thesis' findings: i) organization-level, ii) couple-level, and iii) individual-level interventions.

6.5.1 Organization-level interventions

Considering work-home or family-friendly arrangements, we can distinguish between two categories of arrangements: i) flexible arrangements increasing employees' flexibility regarding working time and/or working place (e.g., part time work, flexible work times, compressed work week, working from home occasionally, and telework); and ii) care-related arrangements, enabling employees to perform their care-giving responsibilities [e.g., maternity leave, paternity leave, parental leave, (subsidized) childcare, and (short-, or long-term) care leave]. However, both the quantity and the type of arrangements offered may vary greatly between countries. National governments (may) play an important role in offering these arrangements. Some years ago, the Dutch government, for example, has issued the law 'Work and Care' (in Dutch: 'Wet Arbeid & Zorg', 1 December 2001) offering employees a wide range of care-related arrangements [i.e., maternity leave, paternity leave, adoption leave, 'calamity leave' (in Dutch: 'calamiteitenverlof'), short-term absence leave (in Dutch: 'kort verzuimverlof'), short- and long-term care leave, parental leave, and the 'lifespan arrangement' (in Dutch: 'levensloopregeling')]. Thus, national governments can improve employees' work-home balance by increasing the number and variety (flexible and/or care-

related) of work-home arrangements offered.

In addition to arrangements issued by national governments, employers (may) play an important role in offering work-home arrangements. In a study of four European countries, Den Dulk (2005) showed that Dutch employers were the most active with regard to childcare provisions. Consequently, if organizations would like to decrease their employees' work-home interference they are advised to offer them a variety of work-home arrangements (i.e., both flexible and child care related).

At both the national and the company level, it is important that the possibility to choose such arrangements thus exists (i.e., that they exist in writing). It is, however, also important that these arrangements 'de facto' can be utilized by employees. At the company level, research has demonstrated the importance of having a family-friendly culture that is typified by a positive attitude of management, supervisors and colleagues towards the use of available family-friendly arrangements (e.g., Kinnunen et al., 2005). According to the results of the studies described in Chapter 3 and 4, a supportive work-home culture characterized by high responsiveness of the organization, supervisor and colleagues to work-family issues is to be preferred if employers want to minimize work-home interference, to optimize positive interaction between work and home and to increase the use of work-home arrangements.

This recommendation aligns with a recent study by Van Daalen, Willemsen and Sanders (2006). These authors show that, for men, time-based negative WHI may be reduced by social support from their supervisor, and that strain-based negative HWI may be reduced by support from their colleagues. Employers are further advised to minimize workers' fear that the use of such arrangements will have negative career consequences and to weaken the link between working long hours and career prospects. Although such a change of culture may not always be easy to achieve in practice, this thesis does suggest the benefits of attempts in this direction in terms of the use of work-home arrangements and reduction of work-home interference.

6.5.2 Couple-level interventions

Several couple-based interventions can be deduced from the findings of the crossover study presented in Chapter 5. In this study, we concluded that crossover from husbands to wives seems to take place through various mechanisms. Husbands' workload and psychological health were not only associated with their wives' psychological health but also with their wives' home demands, and these associations appeared to be invariant across male breadwinner, female (small) part-timer and dual-earner couples. The following suggestions may prevent such crossover effects. First of all, couples could 'take a step back' and discuss

the extent to which they are satisfied with their current division of work- and home-related tasks. If both partners agree that this division is not optimal or suboptimal, various measures can be employed: i) one or both partner(s) could use work-home arrangements enabling the couple to manage work and domestic obligations more successfully (i.e., flexible, and/or care-related arrangements); ii) couples could also consider outsourcing several of their household and/or care giving activities using either paid (e.g., housekeepers, au pairs) or unpaid (e.g., family, neighbors) help; and iii) in case of serious problems partners could even consider the employment of time management courses. According to a recent review of the time management literature by Claessens, Van Eerde, Rutte, and Roe (2007), time management behavior relates positively to perceived control of time, job satisfaction, and health, and negatively to stress symptoms. Therefore, time management courses may well be a suitable intervention for couples juggling with time-related responsibilities from both work and home.

6.5.3 Individual-level interventions

At the individual level, one successful strategy to deal with high workload and work-home interference may be to alter one's attitudes and expectations in such a way that both work and family demands can realistically be met (Geurts & Demerouti, 2003). Hereby, it seems to be crucial to make conscious decisions about how to spend time and effort in each domain. In this respect, this individual-level recommendation resembles the comparable recommendation towards couples mentioned above. Research (Baltes & Heydens-Gahir, 2003) suggests that people who focus on specific goals and who use their time, effort and skills intentionally to achieve desired outcomes in each domain report less stressors and experience higher well-being than people who do not use such a strategy.

In addition, leisure activities may reduce levels of work-home interference and workload since – in general – these activities have high potential for coping with stress and recovering from work (e.g., Sonnentag, 2001; Stanton-Rich & Iso-Ahola, 1998). A diary study by Sonnentag (2001), for example, showed that low-effort, social, and physical activities were successful in improving individuals' well-being before going to sleep. Therefore, a second intervention to reduce negative WHI and workload at the individual level is to engage in effective and pleasant leisure activities.

6.6 Postscript

The aim of this thesis was to contribute to the literature on work-home interference by examining i) its relation to workload in a longitudinal design, ii) its relation to work-home

culture and the use of work-home arrangements, and iii) its impact on partners' (home) demands and psychological health.

All in all, this thesis provides evidence that:

- Negative WHI can be both an antecedent and a consequence of workload;
- Our newly developed WH culture measure is robust across a wide variety of workers and is characterized by two general dimensions: support and hindrance;
- More supportive WH cultures are related to higher utilization of flextime, part time work and subsidized child care, to lower levels of negative WHI, and to higher levels of positive WHI and positive HWI; and
- Husbands' workload and psychological health are related to their wives' home demands and psychological health.

The main (three-level) practical implications of this thesis are:

- Organization-level interventions; both governments and employers should offer employees a wide variety of flexible and care-related arrangements, and employers should support the use of these arrangements;
- Couple-level interventions; work-home arrangements, (un)paid help in the household and/or time management courses may decrease crossover effects between partners; and
- Individual-level interventions; focus on specific goals, time management, and leisure activities may reduce high levels of workload and work-home interference.

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Summary

During the last decades, perspectives on work and home have changed in most Western countries. The traditional segregation between work and non-work has been replaced by the more contemporary viewpoint that these two domains are highly interrelated. This changing perspective on the interface between work and non-work is reflected by a change in the composition of the workforce in most Western countries. Nowadays, a large proportion of the active workforce consists of women.

Although these developments may have beneficial effects from the perspective of emancipation, they can also have adverse consequences for people's work and private lives. More and more employees, in particular working parents, experience difficulty in combining work and private lives. In current literature this is often referred to as work-home interference, defined here as a process whereby one's functioning and behavior in the home domain is negatively influenced by (quantitative and qualitative) demands from the work domain.

Interference can also originate in the family domain (home-work interference; e.g., if one's child gets ill, this may interfere with work performance), and recent studies have shown that participation in one domain (e.g., work) may be beneficial for peoples' functioning and behavior in the other domain (e.g., home). Therefore, we may distinguish between four types of work-home interaction: i) negative work-home influence (negative WHI, or work-home interference), ii) negative home-work influence (negative HWI, or home-work interference), iii) positive work-home influence (positive WHI), and iv) positive home-work influence (positive HWI).

There is strong evidence that interference from work (negative WHI) is more prevalent than interference from home (negative HWI). In addition, negative WHI has the most extensive adverse impact on employees' health and well-being. In the literature, three categories of presumed consequences have been shown to be related to work-home interference: i) physical and mental health outcomes (e.g., physical health symptoms), ii) consequences in the work domain (e.g., turnover intentions), and iii) consequences in the home domain (e.g., lower family satisfaction).

In this thesis we examine work-home interference in relation to work, organizational, and home characteristics. In Chapter 1 we describe previous research on work-home interference, and identify three unresolved issues. First, most studies employed cross-sectional designs making it impossible to draw causal inferences about negative WHI and its correlates (e.g., workload). Second, insufficient attention has been paid to organizational determinants of negative WHI, such as the availability and use of work-home arrangements aimed at enhancing employees' balance between work and home (e.g., part time work, and parental

leave), and work-home culture (i.e., the shared assumptions, beliefs, and values regarding the extent to which an organization supports and values the integration of employees' work and private lives). Third, previous research on negative WHI has mainly focused on the individual employee as subject of analyses. Possible consequences of negative WHI for family members' perceptions and well-being (i.e., crossover) have received little attention.

In this thesis, these issues are further examined guided by the following three research questions: i) how are workload and negative WHI temporally related? (research question 1; Chapter 2); ii) is work-home culture related to the use of work-home arrangements and to work-home interference? (research question 2; Chapter 3 and 4); and iii) do husbands' work demands and psychological health cross over to their wives' home demands and psychological health? (research question 3; Chapter 5). For each research question hypotheses are formulated (for an overview, see Table 1.1 on page 21).

Research question 1: How are workload and work-home interference temporally related?
In Chapter 2, we examine the temporal relationship between workload and negative WHI in a two-wave full-panel study among 828 Dutch police officers. Regression analyses show that workload (time 1) is associated with increased levels of negative WHI one year later beyond negative WHI at time 1, and after controlling for participants' gender and age (Hypothesis 1a supported). Thus, participants reporting higher workload (time 1) tend to experience increased levels of negative WHI one year later. In addition, negative WHI (time 1) is associated with increased levels of workload one year later beyond workload (time 1), and after controlling for participants' gender and age (Hypothesis 1b supported). Thus, participants reporting higher levels of negative WHI (time 1) experience increased levels of workload one year later.

We also take into account the possible confounding role of job and family changes in the temporal relationship between workload and negative WHI. With regard to the influence of job and family changes on this temporal relationship, we find that participants who reported (one or more) family change(s) after the first wave experience lower levels of negative WHI one year later. Considering the most frequently reported family change [i.e., child(ren) leaving the house], this finding may imply that interference from work is lower once children have left the house. Family changes are not associated with time 2 workload, and job changes reported in-between the waves are not related to either negative WHI or workload one year later.

Based on these results, we can conclude that work-home interference acts as both an antecedent and a consequence of workload.

Research question 2: Is work-home culture related to the use of work-home arrangements and to work-home interference?

In Chapter 3, we examine the associations of work-home (WH) culture with the utilization of six WH arrangements (i.e., flexible working times/flextime, telecommuting, working from home occasionally, working part time, financial support for child-care costs, and parental leave) and negative WHI in a sample of 638 employees from a Dutch financial consultancy firm. Based on the literature, we develop a WH culture measure comprised of 18 items. Results of a Confirmatory Factor Analysis in LISREL (CFA) show that this WH culture measure is characterized by five factors (i.e., organization's, supervisor's, and colleagues' support, negative career consequences, and organizational time demands), which can be assigned to two higher-order dimensions, that is, support (reflecting the three types of support) and hindrance (representing negative career consequences and time demands). By crossing these two dimensions four types of WH culture are formed: i) approving WH culture (high support, low hindrance), ii) indifferent WH culture (low support, low hindrance), iii) contradictory WH culture (high support, high hindrance), and iv) obstructing WH culture (low support, high hindrance).

Chi-square tests reveal that women perceive the WH culture as more supportive and less hindering (approving) than men. However, when we control for part time work, men and women no longer differ in their perceptions of the WH culture (Hypothesis 2a not supported). In addition, parents do not differ from non-parents in their perception of the WH culture (Hypothesis 2b not supported).

Furthermore, (M)ANOVA's show that favorable (i.e., approving) WH cultures are not associated with higher utilization of either of the six WH arrangements (Hypothesis 3 not supported in Chapter 3). In line with previous studies, however, workers experience lower levels of negative WHI in a more favorable (approving) culture (Hypothesis 4a supported).

In Chapter 4, the associations between WH culture, the use of four WH arrangements (i.e., flextime, working part time, subsidized child care, and parental leave) and the four types of work-home interaction (negative WHI, negative HWI, positive WHI, and positive HWI) are examined further among 1,179 Dutch employees drawn from one public and two private organizations. Results of a CFA support the previous study's finding that two dimensions (support and hindrance) underlie our measure of WH culture. Moreover, this study shows that the two-dimensional structure of WH culture is invariant across the three organizations, gender and parental status. These findings underline the robustness of the two-dimensional structure of WH culture across a wide variety of workers.

According to a series of (M)ANOVAs, neither men and women nor parents and non-parents differ in their perceptions of WH culture (Hypotheses 2a and 2b not supported). In accordance with our expectations, however, workers from the public organization perceive the WH culture as more supportive and less hindering when compared to workers from the two private organizations (Hypothesis 2c supported). Thus, WH culture seems to be a distinctive difference between these public and private organizations

As regards the use of WH arrangements, logistic regression analyses show that the level of support is the most crucial WH culture component. In accordance with our expectations, employees who perceive higher levels of organization's, supervisor's and colleagues' responsiveness to work-family issues and to the use of WH arrangements, are considerably more likely to use flextime, part time work, and subsidized child care. Hindrance is only related to the use of part time work, but not as an obstructing factor that may have prevented workers from working part time. In fact, part time workers report higher (rather than lower) levels of hindrance. Thus, in Chapter 4, Hypothesis 3 is supported for the support dimension and the use of three out of four WH arrangements (flextime, part time work, and subsidized child care).

With regard to work-home influence, a series of regression analyses demonstrates that support is – again – the crucial WH culture dimension. As expected, a significant interaction effect between support and hindrance on negative WHI reveals that the level of interference from work is lowest in a WH culture characterized by high support and low hindrance (Hypothesis 4a supported). WH culture is not significantly related to negative HWI (Hypothesis 4b not supported). Employees who perceive higher levels of support do experience more positive WHI, and - to a lesser extent - more positive HWI (Hypotheses 4c and 4d supported for the support dimension).

In sum, we can conclude that: i) our newly developed WH culture measure is robust across a wide variety of workers and is characterized by two general dimensions (support and hindrance), ii) men and women as well as parents and non-parents do not differ in their perception of WH culture, whereas workers from a public organization perceive the WH culture as more supportive and less hindering compared to workers in two private companies, and iii) more supportive WH cultures are related to higher utilization of flextime, part time work and subsidized child care, to lower levels of negative WHI, and to higher levels of positive WHI and positive HWI.

Research question 3: Do husbands' work demands and psychological health cross over to their wives' home demands and psychological health?

In Chapter 5, we examine the association between husbands' work demands and psychological health on the one hand and their wives' home demands and psychological health on the other hand among 253 Dutch couples. We test three potential crossover mechanisms (i.e., time-based, strain-based, and empathy-based) among three couple groups (i.e., male breadwinners, female (small) part timers, and dual-earners). Results of structural equation analyses show a positive association between husbands' workload and their wives' home load, thereby providing support for a time-based crossover process (Hypothesis 5a supported). In addition, support is found for a strain-based crossover process; in couples where husbands report higher levels of depressive symptoms and fatigue (lower psychological health), their wives have to work harder at home (higher home load, Hypothesis 5b supported). Finally, evidence is provided in support of an empathy-based crossover process by the finding that when husbands experience more depressive symptoms and fatigue, their wives also experience similar psychological health complaints (Hypothesis 5c supported).

In sum, we can conclude that husbands' workload and psychological health are related to their wives' home demands and psychological health through three potential crossover mechanisms (i.e., time-based, strain-based, and empathy-based).

In Chapter 6, we present the conclusions regarding this thesis' research questions, discuss this research's limitations, and address the assets of this thesis related to theoretical implications. Finally, we discuss some practical implications of our findings.

The main conclusions of this thesis are that: i) negative WHI can be both an antecedent and a consequence of workload; ii) our newly developed WH culture measure is robust across a wide variety of workers and is characterized by two general dimensions: support and hindrance; iii) more supportive WH cultures are related to higher utilization of flextime, part time work and subsidized child care, to lower levels of negative WHI, and to higher levels of positive WHI and positive HWI; and iv) husbands' workload and psychological health are related to their wives' home demands and psychological health.

The main (three-level) practical implications of this thesis are: i) organization-level interventions; both governments and employers should offer employees a wide variety of flexible and care-related arrangements, and employers should support the use of these arrangements; ii) couple-level interventions; work-home arrangements, (un)paid help in the household and/or time management courses may decrease crossover effects between partners;

and iii) individual-level interventions; focus on specific goals, time management, and leisure activities may reduce high levels of workload and work-home interference.

Samenvatting

Gedurende de laatste decennia is de visie op ‘werk’ en ‘thuis’ in de meeste Westerse landen veranderd. Het idee van twee separate domeinen (de traditionele segregatie tussen werk en niet-werk) is vervangen door de visie dat deze twee domeinen sterk aan elkaar gerelateerd zijn. Dit veranderende perspectief op de interactie tussen werk en niet-werk zien we terug in de samenstelling van de beroepsbevolking in de meeste Westerse landen. Tegenwoordig bestaat een groot deel van de werkzame beroepsbevolking uit vrouwen.

Hoewel deze ontwikkelingen gunstige effecten kunnen hebben voor de emancipatie van vrouwen, zijn ook ongunstige gevolgen voor de balans tussen werk en privé mogelijk. Steeds meer medewerkers, vooral werkende ouders, ervaren problemen in het combineren van hun werk- en privéleven. In de huidige literatuur wordt dit fenomeen werk-thuis interferentie genoemd: een proces waarbij iemands functioneren en gedrag in het thuisdomein negatief wordt beïnvloed door (kwantitatieve en kwalitatieve) eisen vanuit het werkdomein.

Interferentie kan ook in het thuisdomein ontstaan (thuis-werk interferentie; bijvoorbeeld als iemands kind ziek wordt kan dit interfereren met de werkprestatie), en recente studies laten zien dat participatie in het ene domein (bijvoorbeeld werk) ook gunstig kan zijn voor iemands functioneren in het andere domein (bijvoorbeeld thuis). Daarom kunnen we onderscheid maken tussen vier typen werk-thuis interactie: i) negatieve werk-thuis invloed (negatieve WTI, of werk-thuis interferentie), ii) negatieve thuis-werk invloed (negatieve TWI, of thuis-werk interferentie), iii) positieve werk-thuis invloed (positieve WTI), en iv) positieve thuis-werk invloed (positieve TWI).

Er zijn sterke aanwijzingen dat interferentie vanuit het werk (negatieve WTI) vaker voorkomt dan interferentie vanuit het thuisdomein (negatieve TWI). Hiernaast heeft negatieve WTI de sterkste negatieve impact op de gezondheid en het welzijn van medewerkers. In de literatuur worden drie typen gevolgen van negatieve WTI verondersteld: i) fysieke en mentale gezondheidsuitkomsten (bijvoorbeeld fysieke gezondheidssymptomen), ii) gevolgen in het werkdomein (bijvoorbeeld ontslagintenties), en iii) gevolgen in het thuisdomein (bijvoorbeeld minder tevredenheid met het gezin).

In dit proefschrift onderzoeken we werk-thuis interferentie in relatie tot werk-, organisatie-, en thuiskenmerken. In Hoofdstuk 1 karakteriseren we eerder onderzoek naar werk-thuis interferentie en identificeren we drie onopgeloste kwesties. Ten eerste hebben de meeste tot nu toe uitgevoerde studies gebruik gemaakt van een cross-sectioneel ontwerp waardoor het onmogelijk is om causale conclusies te trekken over negatieve WTI en haar correlaten (bijvoorbeeld werkdruk). Ten tweede is er onvoldoende aandacht besteed aan organisatiedeterminanten van negatieve WTI, zoals de beschikbaarheid en het gebruik van

zogenaamde werk-thuis regelingen (dit zijn regelingen gericht op het verbeteren van de balans tussen werk en thuis, zoals part time werk en ouderschapsverlof), en werk-thuis cultuur (de gedeelde assumpties, overtuigingen, en waarden ten aanzien van de mate waarin een organisatie de integratie van werk- en privéleven van haar medewerkers ondersteunt en waardeert). Ten derde heeft eerder onderzoek naar negatieve WTI zich voornamelijk gericht op de individuele medewerker als onderwerp van analyse. Mogelijke gevolgen van negatieve WTI van deze individuele medewerkers voor diens gezinsleden ('crossover') heeft weinig aandacht gekregen.

In dit proefschrift worden deze onopgeloste kwesties verder onderzocht aan de hand van de volgende drie onderzoeksvragen: i) hoe zijn werkdruk en werk-thuis interferentie temporeel aan elkaar gerelateerd? (onderzoeksvraag 1; Hoofdstuk 2); ii) hangt werk-thuis cultuur samen met het gebruik van werk-thuis regelingen en met werk-thuis interferentie? (onderzoeksvraag 2; Hoofdstuk 3 en 4); en iii) is er 'crossover' van de werkeisen en psychologische gezondheid van mannen naar de thuiseisen en psychologische gezondheid van hun vrouwen? (onderzoeksvraag 3; Hoofdstuk 5). Voor elke onderzoeksvraag worden hypothesen geformuleerd (zie voor een overzicht Tabel 1.1 op pagina 21).

Onderzoeksvraag 1: Hoe zijn werkdruk en werk-thuis interferentie temporeel aan elkaar gerelateerd?

In Hoofdstuk 2 onderzoeken we de temporele relatie tussen werkdruk en negatieve WTI over de tijd in een 'full-panel' studie met twee metingen onder 828 Nederlandse politiefunctionarissen. Regressieanalyses laten zien dat werkdruk (tijdstip 1) gerelateerd is aan toegenomen niveaus van negatieve WTI een jaar later, na controle voor de invloed van negatieve WTI op tijdstip 1 en voor het geslacht en de leeftijd van de respondenten (Hypothese 1a ondersteund). Hiernaast hangt negatieve WTI (tijdstip 1) samen met toegenomen niveaus van werkdruk een jaar later, wederom na controle voor de werkdrukscore op tijdstip 1 en voor het geslacht en de leeftijd van respondenten (Hypothese 1b ondersteund).

Bij het bestuderen van de temporele relatie tussen werkdruk en negatieve WTI is ook de mogelijk verstorende rol van tussentijdse veranderingen op het werk en thuis meegenomen. Met betrekking tot de invloed van deze veranderingen op de relatie tussen werkdruk en negatieve WTI blijkt dat respondenten die tussen de metingen veranderingen thuis rapporteren, een jaar later lagere niveaus van negatieve WTI ervaren. Aangezien de meest frequent gerapporteerde verandering thuis is dat kinderen het huis verlaten, lijkt het erop dat interferentie vanuit het werk lager is wanneer kinderen het huis hebben verlaten.

Veranderingen thuis zijn niet gerelateerd aan werkdruk op tijdstip 2 en veranderingen op het werk die tussen de metingen hebben plaatsgevonden blijken niet gerelateerd aan negatieve WTI of aan werkdruk een jaar later.

Op basis van deze resultaten blijkt werk-thuis interferentie niet alleen een antecedent maar ook een gevolg van werkdruk te zijn.

Onderzoeksvraag 2: Hangt werk-thuis cultuur samen met het gebruik van werk-thuis regelingen en met werk-thuis interferentie?

In Hoofdstuk 3 onderzoeken we de associaties van werk-thuis (WT) cultuur met het gebruik van zes WT regelingen (flexibele begin- en eindtijden/'flextime', telewerken, af en toe vanuit thuis werken, part time werken, financiële steun voor kinderopvangkosten en ouderschapsverlof) en negatieve WTI in een steekproef van 638 werknemers van een Nederlands financieel adviesbureau. Gebaseerd op de literatuur hebben we een WT cultuur meting ontwikkeld die uit 18 vragen bestaat. Resultaten (Confirmatieve Factor Analyse, CFA in LISREL) laten zien dat deze WT cultuur meting gekenmerkt wordt door vijf factoren (steun van de organisatie, steun van leidinggevende, steun van collega's, negatieve carrièregevolgen en tijdeisen vanuit de organisatie), die op hun beurt weer aan twee hogere orde dimensies kunnen worden toegeschreven: 'Steun' (reflecteert de drie typen steun) en 'Belemmering' (representeert negatieve carrièregevolgen en tijdeisen). Door deze twee dimensies te kruisen ontstaan vier typen WT cultuur, te weten: i) goedkeurende WT cultuur (veel steun, weinig belemmering), ii) onverschillige WT cultuur (weinig steun, weinig belemmering), iii) tegenstrijdige WT cultuur (veel steun, veel belemmering), en iv) tegenwerkende WT cultuur (weinig steun, veel belemmering).

Chi-kwadraat toetsen laten zien dat vrouwen de WT cultuur als meer ondersteunend en minder belemmerend (goedkeurende WT cultuur) ervaren dan mannen. Als we echter controleren voor de factor part time werk, verschillen mannen en vrouwen niet langer wat betreft hun percepties van WT cultuur (Hypothese 2a niet ondersteund). Ook blijken ouders en niet-ouders niet van elkaar te verschillen in hun perceptie van WT cultuur (Hypothese 2b niet ondersteund).

Verder laten (M)ANOVAs zien dat gunstige (goedkeurende) WT culturen niet samengaan met een frequenter gebruik van de zes WT regelingen (Hypothese 3 niet ondersteund in Hoofdstuk 3). In overeenstemming met eerdere studies ervaren werknemers echter wel lagere niveaus van negatieve WTI in een gunstiger (goedkeurende) WT cultuur (Hypothese 4a ondersteund).

In Hoofdstuk 4 worden de associaties tussen WT cultuur, het gebruik van vier WT regelingen ('flextime', part time werken, gesubsidieerde kinderopvang en ouderschapsverlof) en nu alle vier typen werk-thuis interactie (negatieve WTI, negatieve TWI, positieve WTI en positieve TWI) verder onderzocht bij 1,179 Nederlandse werknemers van een organisatie uit de publieke sector en twee organisaties uit de private sector. Resultaten van een CFA ondersteunen de bevinding van de vorige studie (Hoofdstuk 3) dat twee dimensies ('Steun' en 'Belemmering') aan de door ons ontwikkelde WT cultuur meting ten grondslag liggen. De studie in Hoofdstuk 4 laat verder zien dat de tweedimensionale structuur van WT cultuur invariant is wat betreft organisatie, geslacht en ouderlijke status. Deze bevindingen onderstrepen de robuustheid van de tweedimensionale structuur van WT cultuur.

Volgens een serie van (M)ANOVAs verschillen noch mannen en vrouwen, noch ouders en niet-ouders in hun perceptie van WT cultuur (Hypothesen 2a en 2b niet ondersteund in Hoofdstuk 4). Overeenkomstig onze verwachtingen ervaren de werknemers van de organisatie uit de publieke sector de WT cultuur echter als meer ondersteunend en minder belemmerend dan werknemers van de twee private organisaties (Hypothese 2c ondersteund). De WT cultuur lijkt dus te verschillen tussen deze organisaties in de publieke en de private sector.

Logistische regressieanalyses tonen aan dat, wat betreft het gebruik van WT regelingen, 'Steun' de meest cruciale WT cultuur component is. Zoals verwacht maken werknemers die meer steun vanuit organisatie, leidinggevende en collega's ervaren voor werk-thuis kwesties en het gebruik van WT regelingen, meer gebruik van 'flextime', part time werk en gesubsidieerde kinderopvang. De factor 'Belemmering' hangt alleen samen met het gebruik van part time werk, maar niet als factor die werknemers belemmert bij het in deeltijd werken. In feite rapporteren part time werknemers meer belemmering. Dus, in Hoofdstuk 4 wordt Hypothese 3 ondersteund voor de 'Steun' dimensie en voor het gebruik van drie WT regelingen ('flextime', part time werk en gesubsidieerde kinderopvang).

Ook met betrekking tot werk-thuis invloed, demonstreert een serie regressieanalyses dat 'Steun' – wederom – de cruciale WT cultuur dimensie is. Zoals verwacht, laat een significant interactie-effect tussen 'Steun' en 'Belemmering' op negatieve WTI zien dat het niveau van negatieve WTI het laagst is in een WT cultuur die wordt gekenmerkt door veel 'Steun' en weinig 'Belemmering' (Hypothese 4a ondersteund). WT cultuur is niet significant gerelateerd aan negatieve TWI (Hypothese 4b niet ondersteund). Werknemers die meer 'Steun' waarnemen ervaren echter wel meer positieve WTI en – in wat mindere mate – meer positieve TWI (Hypothesen 4c en 4d ondersteund voor de 'Steun' dimensie).

Samenvattend kunnen we dus concluderen: i) dat onze nieuw ontwikkelde WT cultuur meting robuust is en gekenmerkt wordt door twee algemene dimensies ('Steun' en 'Belemmering'), ii) dat mannen en vrouwen net als ouders en niet-ouders niet verschillen in hun perceptie van WT cultuur, terwijl werknemers van een organisatie in de publieke sector de WT cultuur als meer ondersteunend en minder belemmerend ervaren dan werknemers van twee organisaties in de private sector, en iii) dat meer ondersteunende WT culturen gepaard gaan met een frequenter gebruik van 'flextime', part time werk en gesubsidieerde kinderopvang, met lagere niveaus van negatieve WTI, en met hogere niveaus van positieve WTI en positieve TWI.

Onderzoeksvraag 3: Is er 'crossover' van de werkeisen en psychologische gezondheid van mannen naar de thuiseisen en psychologische gezondheid van hun vrouwen?
In Hoofdstuk 5 onderzoeken we de associatie tussen de werkeisen en psychologische gezondheid van mannen en de thuiseisen en psychologische gezondheid van hun vrouwen bij 253 Nederlandse koppels. We toetsen drie potentiële 'crossover' mechanismen (tijd-gebaseerde, spanning-gebaseerde en empathie-gebaseerde) bij drie typen koppels (mannelijke broodwinners, vrouwelijke 'kleine' part timers en tweeverdieners). Resultaten (LISREL analyses) laten een positieve relatie zien tussen de werkdruk van mannen en de 'thuisdruk' van hun vrouwen. Dit biedt ondersteuning voor het veronderstelde tijd-gebaseerde 'crossover' mechanisme (Hypothese 5a ondersteund). Hiernaast is steun gevonden voor het spanning-gebaseerde 'crossover' mechanisme; in koppels waarin de mannen meer depressieve symptomen en vermoeidheid rapporteren (slechtere psychologische gezondheid) werken hun vrouwen thuis harder (hogere thuisdruk, Hypothese 5b ondersteund). Tot slot is ondersteuning gevonden voor het empathie-gebaseerde 'crossover' mechanisme: in geval mannen meer depressieve symptomen en vermoeidheid ervaren, ervaren hun vrouwen ook meer van dergelijke symptomen (Hypothese 5c ondersteund).

Samenvattend kunnen we concluderen dat de werkdruk en psychologische gezondheid van mannen gerelateerd zijn aan de thuiseisen en psychologische gezondheid van hun vrouwen, waarbij drie 'crossover' mechanismen een rol zouden kunnen spelen.

In Hoofdstuk 6 staan de conclusies van dit proefschrift, gerangschikt per onderzoeksvraag. Ook wordt stilgestaan bij enkele beperkingen van dit proefschrift en bespreken we de sterke punten ervan, gevolgd door enige theoretische implicaties. Tot slot komen enkele praktische implicaties van onze bevindingen aan de orde.

De hoofdconclusies van dit proefschrift zijn: i) dat negatieve WTI zowel een oorzaak als een gevolg van werkdruk kan zijn; ii) dat onze nieuw ontwikkelde WT cultuur meting robuust is en gekenmerkt wordt door twee algemene dimensies: ‘Steun’ en ‘Belemmering’; iii) dat meer ondersteunende WT culturen gepaard gaan met een frequenter gebruik van ‘flextime’, part time werk en gesubsidieerde kinderopvang, met lagere niveaus van negatieve WTI, en met hogere niveaus van positieve WTI en positieve TWI; en iv) dat de werkdruk en psychologische gezondheid van mannen samenhangen met de thuiseisen en psychologische gezondheid van hun vrouwen.

De belangrijkste praktische implicaties (op drie niveaus) van dit proefschrift zijn: i) interventies op organisatieniveau; zowel overheid als werkgevers zouden werknemers een passende variëteit aan flexibele en zorggerelateerde regelingen aan moeten bieden en werkgevers zouden het gebruik van deze regelingen moeten ondersteunen; ii) interventies op het niveau van koppels: het gebruik maken van werk-thuis regelingen, (on)betaalde hulp in het huishouden en/of time management cursussen kunnen ‘crossover’ effecten tussen partners verminderen; en iii) interventies op individueel niveau; een focus op specifieke doelen, time management en vrijetijdsactiviteiten kunnen hoge niveaus van werkdruk en werk-thuis interferentie verminderen.

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Josje Dikkers was born on the 14th of August 1979 in Roosendaal, the Netherlands. She studied Work- and Organizational Psychology at Tilburg University from 1997 to 2001. After graduating with honors she started her PhD project on 'work-home interference in relation to work, organizational, and home characteristics' at the Department of Work- and Organizational Psychology of the Radboud University Nijmegen. Josje Dikkers currently works as assistant professor at the Department of Management and Organization Studies of the VU University Amsterdam and as research consultant at Qidos/Pentascope.