Chapter 2   Work, Home and Burnout: An Internet Based Study[4]

2.1 Abstract

Work and family constitute the dominant life roles for employed adults in contemporary society. Work-home interference (WHI) and home-work interference (HWI) is experienced when pressures from these domains are incompatible. The present study tested a job and home demands model of WHI/HWI using a sample recruited from the Internet (N = 1264). Overall, this research made the following contributions: (1) It expanded upon our knowledge of the nature of the mediational effect of WHI and HWI on the demands-burnout relationship, (2) It offered a more precise specification of job and home demands likely to affect burnout, (3) explored possible gender differences in the network of demands, WHI/HWI, and burnout; and (4) It showed the utility of the internet in data collection. Results and limitations are discussed with reference to how our model could be improved and the potential of the Internet as a tool to collect data.

2.2 Introduction

Work and family constitute the dominant life roles for most employed adults in contemporary society. Changes in family structures, increasing participation by women in the workforce, and technological changes (e.g., mobile phones and portable computers) that enable job tasks to be performed in a variety of locations have blurred the boundaries between the job and home-life. For many workers, this has created the potential for interference or conflict to occur between their work and non-work lives (Hill, Miller, Weiner & Colihan, 1998). Work-Home Interference (WHI) and Home-Work Interference (HWI) is experienced when pressures from the work and family roles are mutually incompatible, such that participation in one role makes it difficult to participate in the other (Greenhaus & Beutell, 1985). The importance of this research area is highlighted by the fact that a large body of literature has identified WHI as being associated with reduced job and life satisfaction (see Kossek & Ozeki, 1998, for a discussion) and ill health (Frone, 2000).

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2.2.1 Empirical and Theoretical Background

WHI research has been dominated by the role strain perspective, which suggest that the responsibilities from both domains compete for limited amounts of time and energy (Greenhaus & Beutell, 1985). While some cross-sectional studies have confirmed the asymmetry of the work-home relationship (Frone, Russell & Cooper, 1992a; Jones & Fletcher, 1993), a recent longitudinal study of employed parents by Frone, Russell and Cooper (1997) has suggested that home-work interference (HWI) can have a significant and differential effect on an individuals health, compared to WHI. Frone et al., (1997) found that while WHI was related to heavy alcohol consumption, HWI was related to elevated levels of depression and poor physical health, thus suggesting that they work in different ways. Therefore, the present study will measure WHI and HWI, and explore the different antecedents and consequences with both forms of interference.

2.2.2 Demands

According to Jones & Fletcher (1996), job demands refer to the degree to which working environments contain stimuli that require some effort. Such additional effort may result in additional cognitive, emotional, and/or behavioural activity. The present study is designed to explore demands in more detail and examine their relationship with WHI.

Until recently, most studies of relationship between job demands and job stress have focused on quantitative demands (e.g. workload). One of the most prominent models in this area, Karasek's (1979) demand-control-support (DCS), model has received critical attention with regard to the possible multifaceted nature of job demands. Different types of job demands have been rarely examined within the framework of the model (with the exception of some examples; De Jonge, Mulder & Nijhuis, 1999; Soderfeldt et al., 1996, 1997). The need to evaluate a range of demands is prompted by the fact that the nature of work is changing. Environmental, political and sociocultural forces have contributed to the restructuring of work of the last half a century (see Cooper, Dewe & O'Driscoll, 2001, for a full discussion). To select one example, new technologies are one major reason for the emergence of new forms of working (Hesketh & Neal, 1999). This all suggests that the nature of working is changing by demanding more mental and emotional effort (rather than physical effort alone). In terms of emotional demands, increasing amounts of people work as service

professionals today (e.g., customer service representatives, consultants). Given this background, and the fact that research suggests that overload is one of the most important factors determining WHI (Aryee, 1992; Geurts, Rutte, & Peeters, 1999; Voydanoff, 1988; Wallace, 1999), the role of demands as an important variable and the need to measure a range of demands will be addressed. An innovation in the present study is not just to measure demands by measuring overload but also to assess a much richer set of demands by dividing them into quantitative, emotional and mental demands. In the present research, quantitative job demands refer to work overload or work pressure or too much work to do in too little time. Emotional job demands refer to the degree to which one's work puts one in emotionally stressful situations. Mental demands refer to the degree to which work tasks call upon you to expend sustained mental effort in carrying out your duties. The general definition of demands employed refers to the degree to which the working environment contains stimuli that require some effort (Jones & Fletcher, 1996), and encapsulate the idea that job demands lead to negative consequences if they require additional effort beyond the usual way of achieving the work goals (see Demerouti, Bakker, Nachreiner & Schaufeli, 2001).

In the literature, there is little evidence on the potential impact of home demands on outcomes. An example of an exception is a study by Parasuraman, Purohit and Godschalk (1992), among dual earner couples, which indicated that both men and women with pre-school children had more trouble combining work and family roles than the 'dinky's (double income no kids)'. Traditionally, the WHI literature has measured more structural home demands such as number of children, whether the partner has a job and child care arrangements. The present study will measure psychological demands. This does not imply that the more traditional demands are less important, but it merely signifies a desire to examine the home side of the work-family nexus in more psychological detail. This is in agreement with the idea that the perception of a stimulus or event as demanding is critical for the experience of strain (Cooper et al., 2001). The present study aimed at providing a more balanced view of work and home by designing a set of sub-scales that would roughly mirror the job demands scale. Conversely, and symmetrically, home demands will be operationalised by three sub scales; quantitative home demands, emotional home demands and mental home demands. Using a job-related measure as a model for constructing a symmetrical home-related measure has been used successfully in

the literature (e.g., Frone & Rice, 1987; Frone, Russell & Cooper, 1992, Parasuraman, Purohit & Godshalk, 1996).

2.2.3   Burnout

Originally, burnout was measured in the human services (for reviews see Schaufeli & Enzman, 1998), but recently a general measure has been developed to access burnout outside the human services: the Maslach Burnout Inventory-General Survey (MBI-GS). Accordingly, burnout is viewed as a syndrome of exhaustion, cynicism and professional efficacy. Burnout, referring to the draining of energy and resources caused by chronic job stress is considered a work-related indicator of psychological health (Schaufeli & Enzmann, 1998).

A large body of research has identified both job demands and WHI as antecedents of burnout. Firstly, research examining WHI and strains has yielded consistent and significant results. Several studies have shown that increased WHI is related to increased job burnout (Aryee, 1993; Bacharach, Bamberger, & Conley 1991; Burke, 1988; Drory & Shamir, 1988; Geurts et al., 1999; Greenglass & Burke, 1988; Izraeli, 1988; Kinnunen & Mauno, 1998). Secondly, workload and time pressure explains about 25-50% of the variance of burnout, especially of emotional exhaustion (Lee & Ashforth, 1996). Freudenberger called burnout 'the disease of the over-committed' or 'the super-achiever sickness', suggesting that burned-out employees suffer from an imbalance with their work and home lives. Indeed, Cherniss (1995) followed 26 young professionals who suffered from early career burnout over 12 years and found that those who recovered were more successful at balancing work, family, and leisure. Mashlach (1982) pays special attention to making the transition from work to home by introducing the notion 'decompression'. Maslach argues that people working in an emotional and demanding environment need to 'decompress' before moving into the normal pressure of their private life. In the present research, it follows logically that WHI is an important variable that mediates the ability of individuals to 'decompress' from the work domain to the home domain.

In the present study, we restrict ourselves to the exhaustion and cynicism dimensions of burnout. These two dimensions are generally considered as the 'core of burnout' (Demerouti, Bakker, Nachreiner & Schaufeli, 2001; Green, Walkey & Taylor, 1991), whereas professional efficacy reflects a personality characteristic rather than a genuine burnout-component (Cordes & Dougherty, 1993; Shirom,

1989,). Empirically, this is reflected by the relatively low correlation of professional efficacy with both of the other burnout dimensions (Lee & Ashforth, 1996) and by the fact that cynicism seems to develop in response to exhaustion, whereas professional efficacy seems to develop independently and in parallel (Leiter, 1993).

2.2.4 WHI as a Mediator

The role of WHI (and consequently HWI) as a mediator has been suggested by various studies (Frone et al., 1992; Bakker & Geurts, 2002; Geurts, Rutte & Peeters, 1999; Kinnuen & Mauno, 1998; Parasuraman, Purohit, & Godschalk, 1996; Stephens, Franks, & Atienza, 1997). Baron and Kenny (1986) note that because most phenomena in psychology have multiple causes, a more realistic goal may be to seek mediators that significantly decrease the significance between the predictor and criterion. However, a review of the literature indicates that studies have not done an adequate job in either assessing mediation or distinguishing between full and partial mediation (see Holmbeck, 1997, for a review of assessing mediation). For example, Geurts et al. claim that WHI "plays a perfect mediating role", (1999: 1144), but no effort was made to distinguish between partial and full mediation. Kinnunen and Mauno (1998) and Parasuraman et al. (1996) don't actually assess the mediating role of WHI, except to report that WHI was related to various antecedents and outcomes.

It is important to distinguish between full and partial mediation, as there are strong grounds for believing that WHI may only play a partially mediating role. Firstly, given the fact that some demands are contextual (e.g., e-mails from colleagues or phone calls from clients which are never present in ones home life) it is less likely that all work demands will interfere with home and vice-versa. Secondly, there is accumulating evidence to suggest that job demands have a strong and direct relationship with outcomes such as burnout (see meta-analysis of Lee & Ashforth, 1996). Thirdly, anthropological studies of the way that people separate work and home suggest that some people separate and compartmentalize aspects of their work and home domains (Nippert-Eng, 1995), arranging their lives so that aspects of one domain doesn't interfere with the other. An innovation of the present study will be to distinguish both empirically and theoretically between full and partial mediation effects.

2.2.5 The Present Study

The primary aim of the present research is to test a job and home demands model of work-home interference (see Figure 2.1) using a sample recruited from the Internet. Specifically, the research hypotheses are as follows:

- *H1: Job demands (quantitative, emotional and mental demands) have a direct and indirect effect relationship (through WHI) with burnout.*
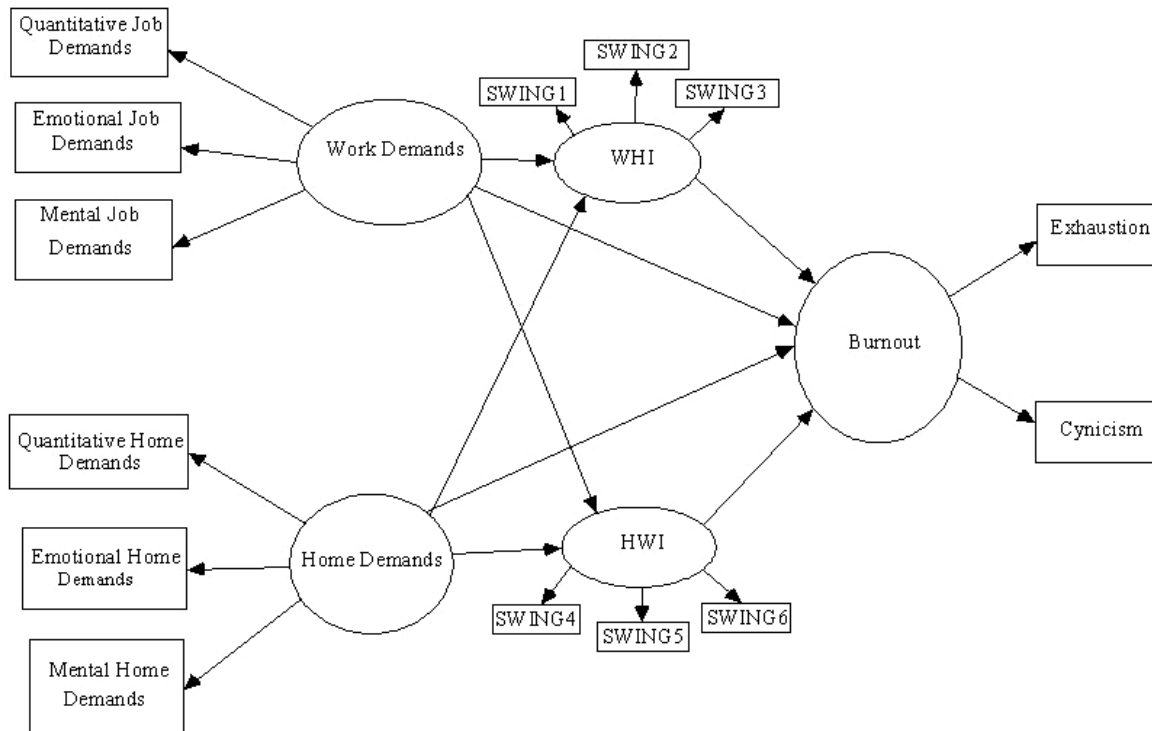

Figure 2.1 Job and Home demands model of work-home interference

- *H2: Home demands (quantitative, emotional and mental demands) have a direct and indirect effect relationship (through HWI) with burnout*

2.2.6 Generalizability of the Model

Several theoretical discussions of work-home stress processes have suggested that gender may represent an important moderator variable (e.g. Eckenrode & Gore, 1990; Lambert, 1990). Empirical work on WHI/HWI illustrates that it is a significant source of strain for both men and women, but that gender differences may exist (Cooper et al., 2001). Overall, the evidence for gender differences is mixed (Barnett, 1998; Milkie & Peltola, 1999). Potential gender differences in work-home stress processes are not always examined (a good exception is Frone et al., 1992) and this represents an important limitation in the literature. In addition, parenthood and the presence of children which can greatly increase time demands on a person, has been

identified as a primary source of home-related stress for both mothers (Lewis & Cooper, 1988) and fathers (Benin & Nienstedt, 1985). In view of the greater dependence of young children on adults, demands on a person is assumed to be strongest for persons with children, which corresponds to the peak stages in Lopata's (1966) model of family roles. Therefore, to address these issues, we examine the fit of our model across gender and parental status.

2.3 Method

2.3.1 Procedure

Once the questionnaire had been constructed, participants were recruited by means of advertising on a popular Dutch web-based magazine (http://www.newmonday.com). The data were stored in a cumulative file on-line, to be fed into SPSS. The survey followed all the general protocols for research participation, such as being anonymous and voluntary. After filling out the questionnaire, respondents were informed about their work-life balance, and they received feedback that was automatically tailored to their own scores.

The questionnaire was advertised by means of a 'banner' that provided a link to the site of the questionnaire. The banner was a rectangular shaped advertisement on the front page, entitled 'Test the balance in your work and home life'. Below this headline a small informational paragraph was included:

"Do you have enough time available for your work as well as for your private life? Or is one or the other giving you trouble all the time? Check your personal balance now. In addition to your personal score you will receive tips and advice. Please fill out the test." The banner remained on the web page for a period of four weeks.

2.3.2 Participants

Of the 1264 respondents (after preliminary data screening) who filled out the questionnaire, 737 (58%) were male and 527 (42%) were female. Participants ranged in age from 20 to 69 years of age (M = 34, SD = 7.7). On average, females were significantly younger (M = 31) than males (M = 35), t (1214) = 7.80, p<.001. The majority of people (76%) lived with a partner, and 42% of people had a supervisory position. 77% of respondents reported having a partner with a paid function and 42% of the respondents had children living at home. No statistical differences were found

between males and females with regard to reported levels of WHI, HWI or burnout. With regard to demands, females reported higher mean levels of emotional job demands, M for females = 1.77, M for males = 1.67, t (1262) = 2.33, p<.05, quantitative home demands, M for females = 2.45, M for males = 2.12, t (1262) = 7.54, p<.01, and mental home demands, M for females = 2.07, M for males = 1.76, t (1262) = 7.27, p<.01.

2.3.3 Measures

The Web-based questionnaire comprised of 79 questions with drop down response categories. Technical considerations and the nature of the Internet as a research tool suggested that it was important to keep the questionnaire as short as possible. Therefore, the included scales were shortened versions of their originals. Stanton, Sinar, Balzar & Smith (2002) encourage researchers to offer reduced-length versions of measures and suggest an exhaustive list of strategies to do so. Essentially, Stanton et al (200) recommend researchers to reduce scales based on indicies of internal, external and judgmental item qualities. In accordance with this, selection of shortened versions was based on psychometric considerations with the most reliable (internal) and face valid items included (judgmental). In addition, the shortened scales correlated well with originals (external).

Work-home Interference (WHI) and Home-work Interference (HWI). WHI and HWI were measured using the Survey Work-Home Interference Nijmegen (SWING). The SWING is a 27-item work-home interference measure developed by researchers in the Netherlands (Wagena & Geurts, 2000). Many items in the SWING are congruent with the WHI/HWI scales of Netemeyer et al., (1996) and Kopelman et al., (1983). In the present research, the two types of interference were measured using 3 items each: (1) negative interference from 'work' with 'home' (negative WHI), referring to a negative impact of the work situation on one's functioning at home (three items; e.g.'how often do you find it difficult to fulfil your domestic obligations because you are constantly thinking about work', α = 0.73); (2) negative interference from 'home' with 'work' (negative HWI), referring to a negative impact of the home situation on one's job performance (three items; 'how often do you arrive late at work because of domestic obligations', α = 0.70). All items are scored on a 5-point frequency scale ranging from '1' (never) to '5'(always).

Burnout. The Dutch version of the Maslach Burnout Inventory: General Survey (MBI-GS) was used to assess burnout (Schaufeli, Leiter, Maslach, & Jackson, 1996). Two sub-scales of the MBI-GS were assessed: Exhaustion (five items; e.g. 'I feel used up at the end of the workday', α= 0.92), and Cynicism (four items; e.g. 'I have become less enthusiastic about my work', α = 0.86). All items are scored on a 7-point frequency rating scale ranging from '0' (never) to '6' (daily). High scores on the exhaustion and cynicism sub-scales are indicative of burnout.

Job demands. Job demands were measured using three scales taken from the Dutch Questionnaire on the Experience and Evaluation of Work (De Vragenlijst beleving en beoordeling van de arbeid (VBBA); Van Veldhoven & Meijman, 1994); quantitative job demands (five items; e.g. 'Do you have to work very fast?'), emotional job demands (4 items; 'Is your work emotionally demanding?') and mental job demands (4 items; 'Must you be very precise in your work?'). All items are scored on 4-point scale from '1' (never) to '4' (always). Internal consistency for the quantitative job demands scale, emotional job demands scale and mental job demands scale were good, α = 0.73, α = 0.86, α = 0.89, respectively.

Home demands. Given that no suitable instrument was identified for the measurement of home demands, it was decided to construct a specific home demands scale for the purposes of this study. The scale was constructed in such a way as to conceptually mirror the sub-scales of the job demands scale (see Appendix C). Therefore, the home demands scale consisted of a quantitative home demands scale (4 items; e.g. 'Do you find that you are busy at home?'), an emotional home demands scale (3 items; e.g. 'How often do emotional issues arise at home?), a mental home demands scale (4 items; e.g. 'Do you find that you have to plan and organize a lot of things in relation to your home life?'). Reliability analyses were carried out to assess the dimensions of the home demands scales. Internal consistencies of the quantitative home demands scale, emotional home demands scale and the mental home demands scales were good, α = 0.80, α = 0.76 and α = 0.80, respectively.

2.3.4 Analysis Strategy

The factor structure and model testing of the SWING, job demands questionnaire and home demands questionnaire was tested using structural equation modeling (SEM) analysis, AMOS (Arbuckle, 1997). The maximum likelihood method was used to examine the covariance matrices of the items. A non-significant

chi-square value indicates a good fit. However, because trivial differences between the predicted and the observed covariance matrices may lead to a significant chi-square when large samples are used, the adequacy of the factor structure will also be assessed with the goodness of fit index (GFI) and the root mean square of approximation (RMSEA; Steiger, 1990). For the GFI, values of .90 or higher indicate a close fit between the model and the data. Browne and Cudeck (1993) have suggested that a RMSEA value of .05 indicates a very close fit, and that values from .05 up to .08 indicate a fair to mediocre fit and represents reasonable errors of approximation in the population. Three other fit indices provided by AMOS will be utilized in the present analysis, namely the incremental fit index (IFI, Bollen, 1989), the normed fit index (NFI; Bentler & Bonett, 1980), and the comparative fit index (CFI; Bentler, 1990). For each of these statistics values larger than or equal to .90 are considered acceptable.

2.4 Results

2.4.1 Assessing the Representativeness of the Internet Sample

Before testing our theoretical model for WHI/HWI, it follows logically that we should first comment on the representativeness of our Internet sample. In an effort to do this, the Internet sample demographics were compared with an estimated Dutch Internet Profile (Proflife, 2001; as recommend by the Central Bureau of Statistics for the Netherlands). A copy of full tables can be accessed from the first author on request. Although differences do exist among the various categories, overall the comparison is good with 89% of our Internet sample and 83% of the estimated Internet population below the age of 44. In our Internet sample, the majority of female respondents were between 25 and 44 (83%), compared with 67% in the estimated Internet population. Overall, comparison between the two sets of data suggests that the Internet data in the present study can be assumed to be representative of the Dutch Internet population, with the acknowledgement that the present sample had a larger proportion of younger women. Interestingly, comparison of our data with the general population statistics for the Netherlands (CBS, 2001) found that the gender divide in the Internet sample compared well with the general population, with women accounting for 42% of the Internet sample, compared with 51% of the general population. This statistic is in contrast to the idea of the Internet as a male dominated medium.

In addition to the previous analyses, it is useful to compare our Internet version with a paper-and-pencil version. Bakker and Geurts (2002) examined WHI and HWI among employees from a pension fund company (N= 507), employees from an occupational health care company (N = 202) and employees from an insurance company (N = 381). Both WHI and HWI were significantly higher among Internet respondents (with the exception for HWI of the Internet respondents and Insurance company employees, with no significant differences). Higher levels of WHI and HWI in our sample would seem to make sense given that our sample has a higher percentage of younger women (compared with the estimated Internet population), and this coincides with women of childbearing age.

2.4.2   Confirmatory Factor Analyses

As a prerequisite to addressing the central hypotheses in this study, we examined the factor structures of the scales. To examine the appropriateness of computing unidimensional scores for each of the major constructs included in the study, each scale was submitted to a principal components analysis (results can be obtained from the first author). Examination of both the number of eigenvalues greater than one and factor loadings supported a decision to treat the hypothesized scales as unidimensional.

Confirmatory Factor analysis was used to test the factor structure for three scales; SWING, job demands and home demands. Table 2.1 presents the results of simultaneous confirmatory factor analysis for each of the three scales. The SWING model with two factors (WHI and HWI) had a much better fit than a one-factor solution, $\Delta\chi^2(1) = 756$, p<.001. With regard to the job demands scale, the hypothesized three-factor model provided a good fit. Modification indices suggested the removal of one item (item 24: 'Do you have enough time to finish your work?') from the quantitative demands scale. This revised model provided a better fit to the data, $\Delta\chi^2(11) = 318$, p<.001. The hypothesized home demands model provided a good fit after the removal of one item (item 37: 'Do you have enough time to finish all the things that you have to, around the house?') from the quantitative home demands scale $\Delta\chi^2(9) = 62$, p<.001. Both removed items were from the quantitative demands scales.

Table 2.1 Confirmatory Factor Analysis

	χ²	df	Δχ²	Δdf	p	GFI	IFI	NFI	CFI	RMSEA
SWING: One factor model	803.19	9				.83	.61	.61	.61	.26
SWING: Two factor model	47.78	8	756	1	.00	.99	.98	.98	.98	.06
Job Demands										
One factor model	3046.48	65				.66	.68	.67	.68	.19
Three factor model (TFM)	679.79	62	2367	3	.00	.92	.93	.93	.93	.09
TFM without Item 24	361.15	51	318	11	.00	.95	.97	.96	.97	.07
Home Demands										
One factor model	1003.00	44				.86	.85	.84	.85	.13
Three factor model (TFM)	349.39	41	654	3	.00	.95	.95	.94	.95	.08
TFM without item 37	287.48	32	62	9	.00	.95	.96	.95	.96	.08

2.4.3 Descriptive Statistics

Table 2.2 provides the means, standard deviations, and correlation coefficients of the study variables. Respondents reported significantly higher levels of WHI-negative in comparison with HWI-negative, t (2526) = 23.91, $p<.001$. As expected, WHI-negative is positively correlated with HWI-negative (r = .31, $p<.01$) indicating that both constructs are related. WHI-negative was moderately correlated with exhaustion (r = .50, $p<.01$) and weakly with cynicism (r = .22, $p<.01$). HWI-negative was moderately correlated with exhaustion (r = .34, $p<.01$) and cynicism (r = .33, $p<.01$). Respondents reported higher mean levels of quantitative job demands compared with quantitative home demands, t (2526) = 8.17, $p<.001$, and higher mean levels of mental job demands compared with mental home demands, t (2526) = 34.34, $p<.001$. Comparison between mean levels of burnout of the respondents in this study and 190 Dutch managers from the Utrecht Burnout Manual (Schaufeli & Van

Dierendonck, 2000) indicates that the respondents in the present study had a higher mean levels of cynicism ($\underline{M}$ = 2.49 & $\underline{M}$ = 1.71, $\underline{t}$ (1452) = 8.43, $\underline{p}$<.001, and exhaustion, ($\underline{M}$ = 2.78 & $\underline{M}$ = 1.42, $\underline{t}$ (1452) = 15.56, $\underline{p}$ <.001. All the correlations were significant and in the expected direction.

2.4.4   Model Testing for the Full Sample

Table 2.3 summarises the goodness of fit indices for three models (one baseline model and two substantive models). The baseline model was the independence model in which covariation among all the variables was constrained to zero. The large and significant chi-square value for the null model indicates a poor fit to the data, indicating that there is significant covariation among the variables. On the basis of our theoretical expectations we expect the model in Figure 2.1 to fit best. In order to test this systematically, two substantive nested models were tested: the theoretical model as shown in Figure 2.1 (model A) and a modified model whereby job demands and home demands were allowed to covary (model B). The modifications made in model B is based on an examination of the modification indices and theoretical considerations. Model fit improved when job and home demands were allowed to covary (model B) and two non-significant paths were removed (the path from work demands to HWI-negative and the path from home demands to WHI-negative) $\Delta\chi^2(1)$ = 315.26, p<.001. Finally, an examination of the modification indices revealed that the overall fit of the model B could not be substantially improved by freeing any of the remaining paths that were constrained to equal zero. At this point, satisfaction with the content of the model had been achieved. RMSEA indicates that some model improvement is still possible, however, the modification indices no longer show theoretically defensible modifications that provide a large enough improvement.

Table 2.2 Means, Standard Deviations and Correlations

	Variable	Mean	s.d.	1	2	3	4	5	6	7	8	9
1	WHI	2.15	0.81									
2	HWI	1.46	0.63	0.31**								
3	Quantitative job demands	2.52	0.82	0.39**	0.12**							
4	Emotional job demands	1.71	0.71	0.29**	0.17**	0.46**						
5	Mental job demands	2.97	0.82	0.22**	0.14**	0.63**	0.48**					
6	Quantitative home demands	2.26	0.78	0.21**	0.27**	0.32**	0.30**	0.39**				
7	Emotional home demands	1.66	0.65	0.23**	0.42**	0.31**	0.35**	0.40**	0.49**			
8	Mental home demands	1.89	0.76	0.16**	0.30**	0.30**	0.27**	0.41**	0.69**	0.55**		
9	Exhaustion	2.78	1.11	0.50**	0.34**	0.45**	0.46**	0.40**	0.39**	0.40**	0.34**	
10	Cynicism	2.49	1.19	0.22**	0.33**	0.22**	0.30**	0.23**	0.31**	0.30**	0.28**	0.64**

Note. **$p< .01$

2.4.5 Alternate models

De Jonge et al (2001) have questioned the role of WHI/HWI as a mediator in the job stress literature. They suggest that models which position WHI as an independent variable should be tested to try to empirically answer this question. In the present research, recalculating the model with WHI and HWI as independent variables and job demands and home demands as mediators tested this suggestion

Compared with our final model, there was a significant increase in the chi-square and the fit indices indicating a worse fit (Alternate model: chi-sqn = 744.680, df = 67, GFI = .923, IFI = .900, NFI = .891, CFI = .899, RMSEA = .089), therefore suggesting a worse fitting model. In addition, as before, evidence of job demands and home demands as mediators were tested using the procedure recommended by Holmbeck (1997). No evidence of full mediation was found for either job demands or home demands. No evidence of partial mediation was found for home demands acting as a partial mediator. Some evidence was found for partial mediation for job demands, with the path coefficient from WHI to burnout reducing with the inclusion of job demands (from $\beta = .44$ to $\beta = .32$). Overall, the alternate model with WHI and HWI as independent variables was rejected on empirical and theoretical grounds. The idea of WHI/HWI as independent variables is at variance with our contention that WHI/HWI suggests a mediational process by definition.

2.4.6 Parameter estimates.

With regard to the first and second hypothesis, there was only evidence of partial mediation. Parameter estimates for Model B are shown in Figure 2.2. Job demands and home demands indicated a significant covariation. The mediational paths in the theoretical model suggests that WHI will partially mediate between job demands and burnout, and conversely, HWI will partially mediate between home demands and burnout. The present approach taken to the assessment of mediation within an SEM model is the one recommended by Holmbeck (1997). According to this approach, there is a latent predictor variable (A), a hypothesized mediator variable (B), and a latent outcome variable (C).

Table 2.3 Evaluation of Full model

	χ^2	df	$\Delta\chi^2$	Δdf	p	GFI	IFI	NFI	CFI	RMSEA
Baseline (Null Model)	6822.94	91				.43	.00	.00	.00	.24
Model A	957.93	71	5865.01	20	.00	.91	.87	.86	.87	.10
Model B	642.67	70	315.26	1	.00	.93	.92	.91	.92	.08

Note. χ^2= chi-square, df = degrees of freedom; $\Delta\chi^2$ = chi-square difference, GFI = goodness-of-fit index; IFI= incremental fit index; CFI = comparative fit index, RMSEA = root mean square error of approximation.
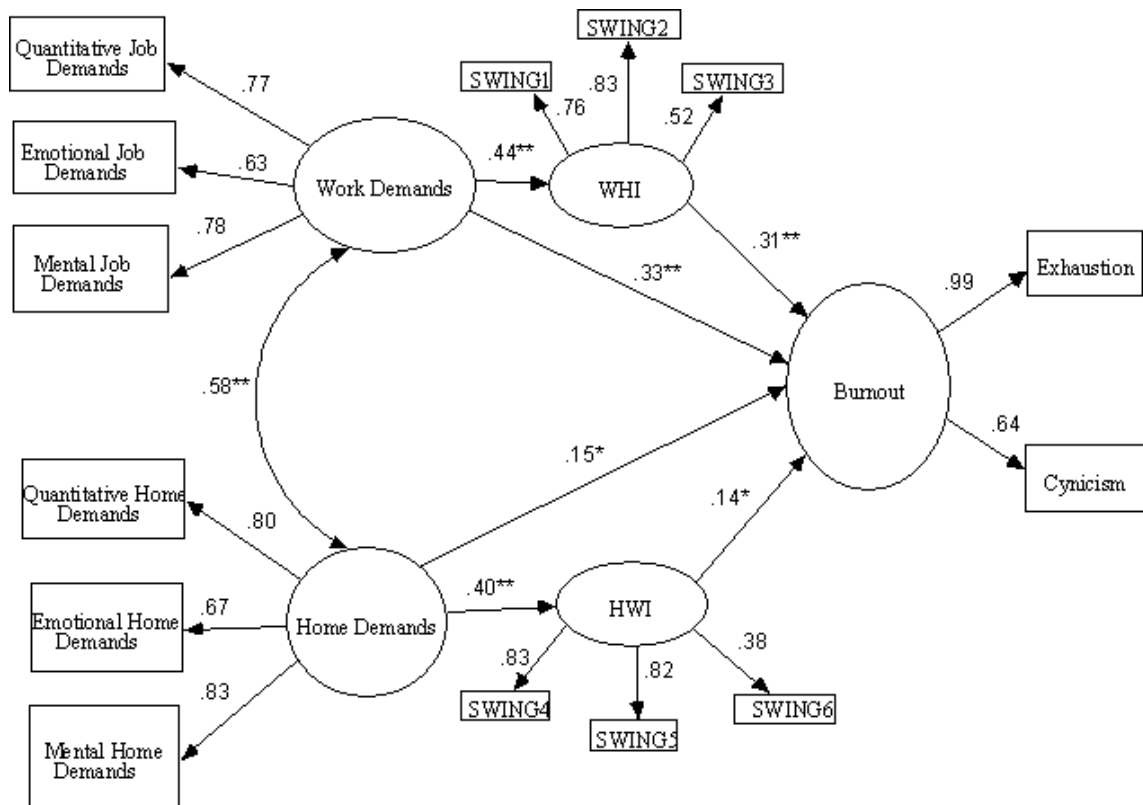
Figure 2.2 Parameter estimates of Model B

Firstly, one assesses the fit of the direct path between predictor and criterion (A to C). Assuming the overall fit provides an adequate fit to the data, the A to B and B to C paths are examined. A to C, A to B, B to C should all be significant in the direction predicted. The final step in assessing whether there is a mediational effect is to access the fit of the A to B to C model under two conditions: (a) when the A to C path is constrained to zero, and (b) when the A to C path is not constrained. One then examines whether the second model provides a significant improvement in fit over the first model. If there is a mediational effect, the addition of the A to C path to the constrained model should not improve the fit. Using this methodology, no support was found for either WHI-negative or HWI-negative as full mediators between demands and outcomes. However, Holmbeck (1997) also suggests that partial mediation can be indicated by examining the A to C path coefficients for when the proposed mediator is and is not included. Using this approach, it was found that the path coefficient from work demands to burnout reduced with the inclusion of the mediator WHI-negative; (from $\beta = .84$ to $\beta = .66$). Similar results were found for the relationship between home demands and burnout, with the inclusion of the mediator (HWI-negative; from $\beta = .35$ to $\beta = .22$). These results suggest a partial mediation

effect. In addition, analysis of the correlations (Table 2.2) reveals that quantitative job demands were most strongly correlated with WHI (r = .39, p<.01), and emotional home demands were most strongly correlated with HWI (r = .42, p<.01). Therefore, evidence was found to support hypotheses one and two.

2.4.7   Multiple Group Comparisons

To examine whether the findings based on the full sample were invariant across different categories, differences between constrained and unconstrained models were examined. For example, to examine invariance across gender, fit indices between group models were specified with increasing levels of constraint, from the initial model where all of the parameters were freely constrained to a successive level of constraint whereby factor loadings, path coefficients and error variances were constrained. If the Chi-square difference test reveals a lack of invariance, a logically organized strategy of sequentially and incrementally constraining factors is recommended (see Byrne, 2001 for a full discussion). The general scheme is to initially test for the invariance of all factor loadings, and then, assuming non-invariance at this level, sequential testing of parameter estimates until a chi-square difference is found. Using the Byrne (2001) approach in the present study, equality constraints were specified in each group for factor loadings on; burnout, WHI, HWI, work demands and home demands, respectively. Factor loadings were incrementally constrained until a significant difference in chi-square was found (see Table 2.4).

Gender. Significant differences were found between the unconstrained model and the constrained models (males, N = 737; females, N = 527). This suggests that one or more of the individual parameter estimates varied across the two groups. Sequential examination of the factor loadings revealed that males and females were not invariant across work demands, WHI and HWI. Examination of the parameter estimates revealed that WHI was more strongly associated with burnout for females (β = .42, p<.01), compared to males (β = .22, p<.01).

Table 2.4 Goodness-of-Fit Information for Group Comparisons

Group	χ^2	df	$\Delta\chi^2$	Δdf	p	GFI	IFI	NFI	CFI	RMSEA
Gender										
Free Parameters	608.37	134				.94	.93	.91	.93	.05
Equal Factor Loadings	638.96	143	30.62	9	.00	.93	.93	.91	.93	.05
Equal Path Coefficients	678.14	150	39.14	7	.00	.93	.92	.90	.92	.05
Equal Error Variances	740.64	167	62.50	17	.00	.92	.92	.89	.92	.05
Children at home										
Free Parameters	534.97	134				.94	.93	.91	.93	.05
Equal Factor Loadings	558.12	143	23.15	9	.00	.94	.93	.91	.93	.05
Equal Path Coefficients	619.79	150	61.67	7	.00	.93	.92	.90	.93	.05
Equal Error Variances	721.38	167	101.59	17	.00	.92	.91	.88	.91	.06

For males home demands had a more significant direct relationship with burnout ($\beta = .21$, $p<.01$), as compared with females ($\beta = .05$, $p<.01$).

Young children at home. With regard to the category of whether respondents had children at home (Respondent had no children, $N = 796$; Respondent had young children living at home < 13 years old, $N = 372$), significant differences were found between the constrained models and unconstrained ones. Given that the chi-square differences were significant, it is suggestive of the fact that the model is not invariant across these two groups. Sequential examination of the constraints revealed differences in the factor loadings for both home and work demands.

2.5   Discussion

Using the internet as a means to collect data, this research made the following contributions: (1) It expanded upon our knowledge of the nature of the mediational effect of WHI and HWI on the demands-burnout relationship, (2) It offered a more precise specification of job and home demands likely to affect burnout, (3) explored possible gender and parental status differences in the network of demands, WHI/HWI, and burnout and (4) It showed the utility of the internet in data collection.

The primary aim of this research was to test a job demands and home demands model of WHI/HWI. A significant result of the research was that we found partial mediational effects for both WHI and HWI. Taking work and home to be the two primary domains for people, this confirms one of our basic ideas that demands both at work and home interfere with functioning in the opposing domain and contribute to feelings of burnout.

An important innovation of the present research in comparison with previous research was that full and partial mediation was distinguished between. It is of critical importance that researchers make an effort to, firstly, properly assess whether evidence of mediation is present and, secondly, to distinguish between level of mediation. In the present study, support was found for WHI and HWI as partial mediators between demands and burnout. This probably suggests that certain demands are domain specific (such as mental demands) and are less likely to interfere between domains. For example, certain demands such as answering the phone and responding to e-mails may be more structurally linked and may only be an issue within an individuals work setting and therefore less likely to cause interference from work to home. Evidence of such a contextual effect can be found in Table 2.2, which

reveals that WHI is most strongly correlated with quantitative job demands and HWI is most strongly related to emotional home demands, suggesting that different antecedents are 'driving' the different forms of interference. A finding of partial mediation, with some demands more strongly related to WHI and HWI doesn't lessen the importance of WHI and HWI. Rather, it suggests that if an organisation wants to reduce the demands of its employees and reduce levels of WHI and HWI, it needs to address the demands that are more likely to spill over from one domain to the next, as opposed to a more 'general' strategy that aims to reduce the quantitative demands of workers.

A second important innovation of the present research was the measurement of job and (especially) home demands in a detailed way. This is a response to researchers who call for us to broaden our perspective of demands (De Jonge & Dormann, 2002; De Jonge et al., 1999; Le Blanc, Bakker, Peeters, Van Heesch & Schaufeli, 2001). Using demands that are specific will provide more opportunities to detect meaningful associations between variables. In the present study, significant differences were found between reported levels of quantitative job demands versus quantitative home demands, and between mental job demands and mental home demands. Such a difference indicates the importance of quantitative and mental demands within the job domain. Assessment of both job and home demands (from a subjective framework) helps to widen the debate beyond the structural characteristics of work and home.

2.5.1 Generalizability of the Model

The observed gender differences are in disagreement with previous studies that have tested for and found no gender differences in work-home/family models (Bedeian, Burke & Moffet, 1988; Frone, Russell & Cooper, 1992). Our results suggest that males and females experience WHI and HWI in different ways. Of particular interest was the fact that WHI was more strongly related to burnout for females. This may suggest that for Dutch working women, the higher levels of WHI makes it more likely they will suffer from burnout, and such a finding finds agreement with gender socialisation theory (Barnett & Rivers, 1998), and suggestive of the fact that women must tackle the double burden of work and home (more than men). Indeed, the fact that for men, home demands were strongly related to burnout may suggest that the males in our sample were less able to cope with the strains of

home. Indeed, Milkie & Peltola (1999) have suggested that women may have developed more adaptive strategies for dealing with the burdens of the job and home domains. As expected, our model did not fit with respect to the category of parental status suggesting that the presence of children is an important consideration with respect to how we conceptualise work/home processes.

2.5.2 The Internet as a Research Tool

The potential of the Internet as a possible research tool has been well documented (Buchanan & Smith; 1999; Schmidt, 1997). In relation to the issue of whether the Internet is viable place to carry out psychological research, the evidence presented is favourable. The strength of the present research was that the research topic was targeted at the individuals who would be most likely to be drawn from the strata of society who have jobs involving multiple demands and who have to balance their busy work lives with their home lives. Congruently, these individuals are most likely to be representative of the Internet population in the Netherlands. The fact that our female sample tended to be younger than the estimated Dutch Internet Population is consistent with the idea that younger women, who are both starting their careers and having babies, are most likely to suffer from work-home interference problems (68% of our female respondents had children living at home).

2.5.3 Limitations

Although the data provides us with interesting information about factorial validity of the job demands and home demands scales, only predictive validity information was gained in relation to burnout. It would have been interesting to also include other measures of work-home interference and also to relate the SWING and home demands scales to more home-related dependent measures. The sub-scales that were employed represent negative constructs (work interfering with home and vice-versa). Positive versions of the WHI and HWI do exist (Wagena & Geurts, 2000) but were not used in this research due to the limitation of having to keep the questionnaire length below a certain length for use on the Internet. Finally, the present study is cross-sectional and thus the postulated relationships cannot be interpreted causally. Longitudinal studies and/or quasi-experimental research designs are needed to further validate the hypothesised causality of the relationships.

The huge advantage in using Internet mediated research is that it can provide large amounts of data in a short time, at very little cost. However, the Internet as a

research tool is difficult to have control over and it is impossible to have information about the non-responders in the sample. It is possible that the people who filled in the questionnaire were the most motivated individuals, and thereby not representative of the total population of people in the Netherlands who have work-home interference problems. In this sense, the results of the research may be most pertinent to people from the upper strata of society who have access to the Internet. Although the Internet can provide increased heterogeneity, and this may equal increased representativeness, this increased heterogeneity can come with a cost. The Internet may introduce unknown confounding variables, which might have the effect of increasing 'noise' in the data, and reducing the proportion of variance in responses accounted for by differences in the causal entity that one is trying to measure. Overall, this research expanded upon our knowledge of the nature of the mediational effect of WHI and HWI on the demands-burnout relationship and offered a more precise specification of job and home demands likely to affect burnout.