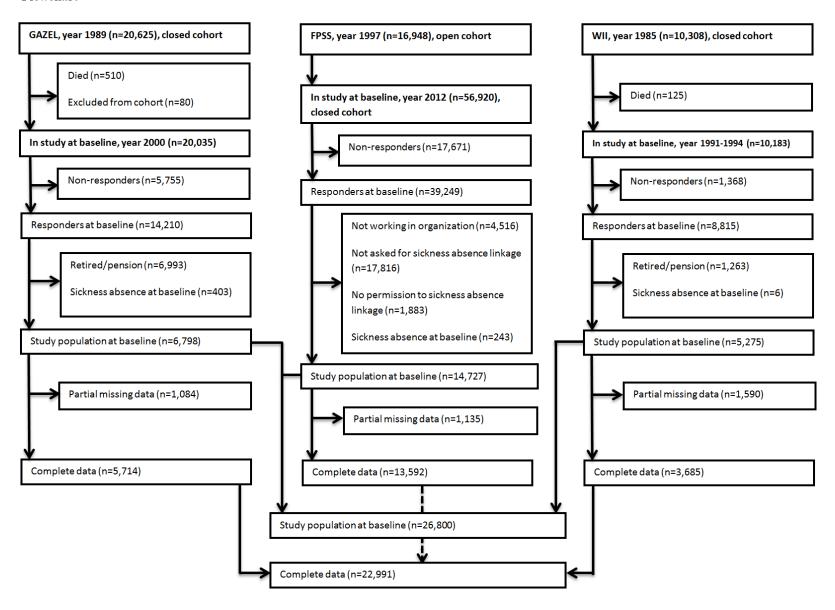
Original article. Scand J Work Environ Health. 2017;43(1):5–14 doi:10.5271/sjweh.3587

Job strain and informal caregiving as predictors of long-term sickness absence: A longitudinal multi-cohort study $^{\rm 1}$

By Jesper Mortensen, ² Nadya Dich, PhD, Theis Lange, PhD, Kristina Alexanderson, PhD, Marcel Goldberg, PhD, Jenny Head, MSc, Mika Kivimäki, PhD, Ida EH Madsen, PhD, Reiner Rugulies, PhD, Jussi Vahtera, PhD, Marie Zins, MD, Naja Hulvej Rod, DMSc

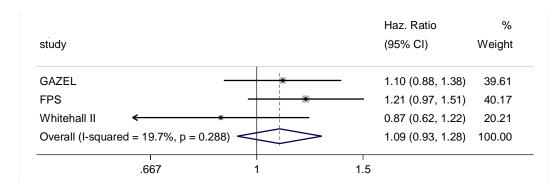
- 1 Appendix
- 2 Correspondence to: Jesper Mortensen, Department of Public Health, University of Copenhagen, Gothersgade 160, Copenhagen, Denmark. [email: jemo@sund.ku.dk]

Flowchart

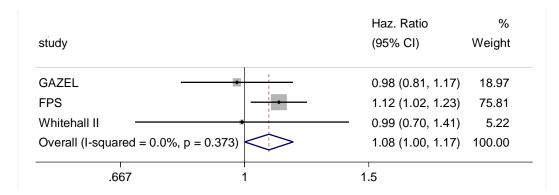


Appendix: Figure 2. Association between job strain and long-term sickness absence

A. Men



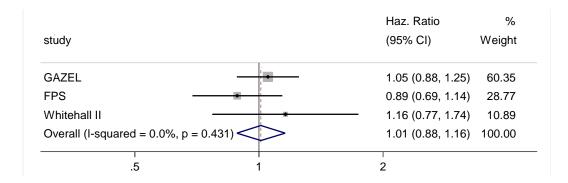
B. Women



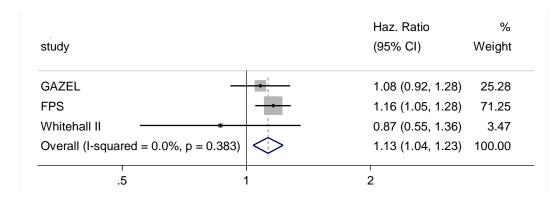
Adjusted for age, married/cohabiting, children, occupational grade, death of relative and/or divorce, previous long-term sickness absence, and longstanding illness

Appendix: Figure 3. Association between informal caregiving and long-term sickness absence

A. Men



B. Women



Adjusted for age, married/cohabiting, children, occupational grade, death of relative and/or divorce, previous long-term sickness absence, and longstanding illness

Appendix: Table 3. Joint exposure of informal caregiving and job strain on long-term sickness absence (Unadjusted and multiple adjusted). Multiple adjusted: Adjusted for age, married/cohabiting, children, occupational grade, death of relative and/or divorce, previous long-term sickness absence, and longstanding illness

	Unadjusted analyses								
	Men (n=9,568)	J ²	Women (n=12,995)	J ²					
High strain, caregiving	1.02 (0.73;1.42)	0%	1.42 (1.22;1.65)	0%					
High strain, no caregiving	1.30 (1.01;1.67)	61%	1.15 (0.96;1.39)	58%					
No high strain, caregiving	1.11 (0.95;1.29)	0%	1.16 (1.02;1.36)	33%					
No high strain , no caregiving	1	-	1	-					
Multiplicative interaction	0.084	16%	0.934	0%					
Additive interaction, SI	0.05	-	1.35	-					
	Multiple adjusted analyses								
	Men (n=9,568)	l ²	Women (n=12,995)	l ²					
High strain, caregiving	0.91 (0.64;1.28)	0%	1.20 (1.03;1.41)	0%					
High strain, no caregiving	1.14 (0.97;1.35)	14%	1.06 (0.93;1.21)	27%					
No high strain, caregiving	1.07 (0.92;1.24)	0%	1.15 (1.01;1.29)	14%					
No high strain , no caregiving	1	-	1	-					
Multiplicative interaction	0.112	0%	0.766	0%					
Additive interaction, SI	-0.43	-	0.95	-					

Appendix: Table 4. Joint exposure of informal caregiving and job strain on long-term sickness absence: Main analyses, multiple imputed, first event of long-term sickness absence, and censoring at age 58 respectively. Adjusted for age, married/cohabiting, children, occupational grade, death of relative and/or divorce, previous long-term sickness absence, and longstanding illness

	Multiple imputation analyses				First event of long-term sickness absence				Censor at age 58				
					only								
	Men	l ²	Women	l ²	Men	l ²	Women	l ²	Men	l ²	Women	l ²	
	(n=11,331)		(n=15,469)		(n=9,568)		(n=12,995)		(n=8,832)		(n=10,962)		
High strain, caregiving	0.92	0%	1.24	0%	0.86	0%	1.25	0%	0.89	0%	1.20	0%	
	(0.66;1.29)		(1.07; 1.44)		(0.59; 1.24)		(1.05;1.49)		(0.63;1.26)		(1.02;1.42)		
High strain, no	1.17	0%	1.09	23%	1.14	37%	1.07	0%	1.15	4%	1.01	44%	
caregiving	(1.01; 1.35)		(0.97;1.22)		(0.91;1.42)		(0.96;1.18)		(0.98;1.35)		(0.86;1.19)		
No high strain,	1.05	0%	1.16	13%	1.01	0%	1.12	31%	1.05	0%	1.17	21%	
caregiving	(0.91; 1.22)		(1.04; 1.31)		(0.85;1.20)		(0.94; 1.32)		(0.90; 1.23)		(1.01;1.34)		
No high strain , no	1	-	1	-	1	-	1	-	1	-	1	-	
caregiving													
Multiplicative	0.179	0%	0.968	0%	0.146	0%	0.802	6%	0.112	0%	0.755	0%	
interaction													
Additive interaction, SI	-0.36	-	0.96	-	-0.93	-	1.32	-	-0.55	-	1.11	-	

Appendix: Table 5. Joint exposure of informal caregiving and job strain on long-term sickness absence: Cohort-specific analyses and analyses without previous long-term sickness absence as a confounder. Adjusted for age, married/cohabiting, children, occupational grade, death of relative and/or divorce, previous long-term sickness absence (only cohort-specific analyses), and longstanding illness

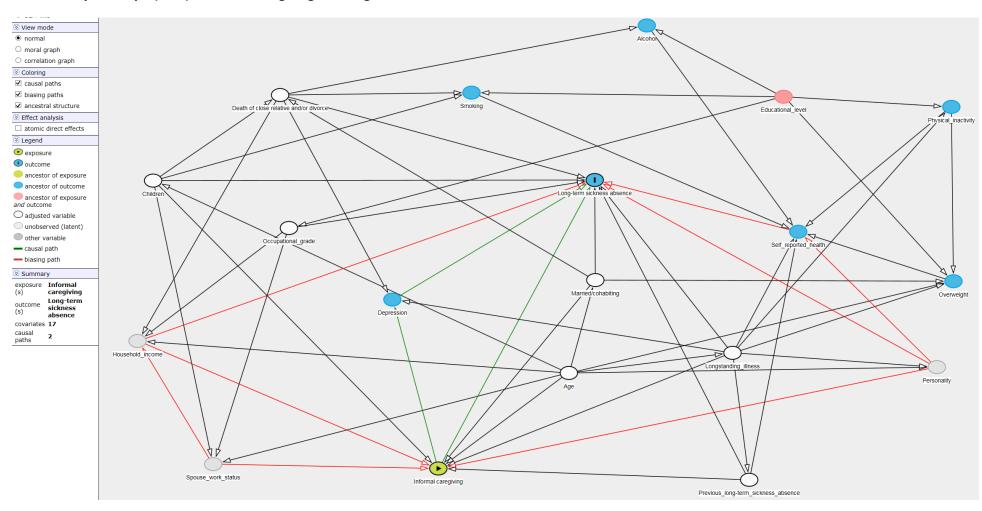
	GAZEL				FPS				Whitehall II				Analysis without previous sickness absence as confounder			
	Men (n=4,104)	Weigh t	Women (n=1,896)	Weigh t	Men (n=2,709)	Weigh t	Women (n=10,169)	Weigh t	Men (n=2,755)	Weigh t	Women (n=930)	Weigh t	Men (n=10,167)	l ²	Women (n=15,243)	l ²
High strain, caregiving	1.02 (0.67;1.56)	66%	1.12 (0.83;1.51)	28%	0.71 (0.36;1.40)	25%	1.24 (1.03;1.51)	68%	0.73 (0.23;2.29)	9%	1.17 (0.49;2.81)	3%	0.91 (0.64;1.28)	0%	1.33 (1.15- 1.55)	0%
High strain, no caregiving	1.16 (0.90;1.51)	36%	0.95 (0.77;1.26)	26%	1.26 (1.00;1.59)	43%	1.14 (1.03;1.26)	63%	0.91 (0.65;1.29)	21%	0.94 (0.65;1.36)	11%	1.17 (0.95;1.44)	45 %	1.14 (1.04- 1.24)	0%
No high strain , caregiving	1.08 (0.88;1.32)	57%	1.12 (0.90;1.40)	26%	0.97 (0.74;1.28)	30%	1.19 (1.06;1.34)	69%	1.27 (0.82;1.95)	12%	0.80 (0.48;1.33)	5%	1.06 (0.91;1.24)	0%	1.13(0.97- 1.33)	37 %
No high strain , no caregiving	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1	-
Multiplicativ e interaction	0.434	64%	0.825	26%	0.160	26%	0.502	70%	0.505	10%	0.415	4%	P=0.104	0%	P=0.861	0%
Additive interaction,	0.08	-	1.71	-	-1.26	-	0.73	-	-1.50	-	-0.65	-	-0.39	-	1.22	-

Appendix: Table 6. Joint exposure of informal caregiving and job demands/job control on long-term sickness absence. Adjusted for age,

	Meta-analyses separate for	r demands and control		
Job demands	Men (n=9,661)	l ²	Women (n=13,235)	l ²
High demands, caregiving	0.90 (0.73;1.12)	0%	1.19 (1.05;1.34)	0%
High demands, no	0.97 (0.81;1.18)	60%	1.05 (0.92;1.20)	39%
caregiving				
Low demands, caregiving	1.09 (0.91;1.31)	0%	1.16 (1.04;1.31)	0%
Low demands, no	1	-	1	-
caregiving				
Multiplicative interaction	p=0.178	0%	p=0.612	0%
Additive interaction, SI	-1.67	-	0.90	-
Job control	Men (n=9,628)	l ²	Women (n=13,127)	l ²
Low control, caregiving	1.02 (0.82;1.28)	0%	1.28 (1.13;1.44)	0%
Low control, no caregiving	1.22 (1.08;1.38)	0%	1.10 (0.92;1.31)	60%
High control, caregiving	1.18 (0.98;1.41)	0%	1.10 (0.83;1.45)	62%
High control, no caregiving	1	-	1	-
Multiplicative interaction	P=0.023	0%	P=0.837	41%
Additive interaction, SI	0.05	-	1.40	-

married/cohabiting, children, occupational grade, death of relative and/or divorce, previous long-term sickness absence, and longstanding illness

Directed Acyclic Graph (DAG): Informal caregiving and long-term sickness absence



Directed Acyclic Graph (DAG): Job strain and long-term sickness absence

