So far so good, but for how long?

An experience sampling examination of the workaholic's short-term reactions to increased workload and workday accumulation

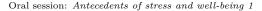
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15th European Academy of Occupational Health Psychology Conference

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Outline

- Background
- Research questions and hypotheses
- Method
- Results
- Discussion and conclusions





Background





Portrait of a workaholic



Dysfunctional form of heavy work investment ('work addiction'): preoccupation & compulsion regarding work, difficulties in disengaging from it, tendency to work for very long hours (Clark et al., 2016; Schaufeli et al., 2008, 2009)

- Working Excessively
- Working Compulsively

Highly prevalent phenomenon (8-25%) of increasing concern (e.g., work intensification, ICT use, remote work) (Sussman, 2012; Shimazu et al., 2020)

- \rightarrow high levels of physical & mental job strain ('overwork-related disorders')
- + repercussions for significant others

(Atroszko et al., 2019; Griffiths et al., 2018; Clark et al., 2016).





Workaholics' affective experience

- outside work: consistent findings of tension & irritation when impeded to remain immersed
- during work: mixed findings of work enjoyment & perceived career success
 BUT low job satisfaction & high negative affect

Negative affect experienced outside work (e.g., guilt) outweighs positive affect experienced during work? (Clark et al., 2016)



The importance of timing:

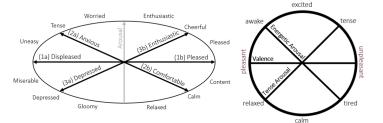
most results from cross-sectional designs or end-of-day diary ratings \rightarrow Difficult to distinguish the two domains





Affective wellbeing & job-related affect

- Affective wellbeing = most investigated consciously accessible component of mental health → Warr's Job-related AW Scale (Warr, 1990; Menghini et al, In press)
- Affective strain = most immediate & direct response to job stressors, creating cognitive, motivational, & physical pathways to distal outcomes (Pindek et al., 2019)



Moods = diffused, time-varying, and consciously available affective states, affected by discrete emotions & emotional events

(Wilhelm & Schoebi, 2007; Menghini et al, Accepted)





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Affective reactivity to job stressors



Workload

Quantitative amount or difficulty in ones' work (Job Demand)

(Bowling et al., 2015; Ilies et al., 2010)

- Prominent stressor in the modern workplace, varies across job tasks
- Powerful stressor with affective consequences



Workday accumulation

Daily amount of time spent working → increasing Fatigue, decreasing Vitality

(Benedetti et al., 2015; Johnston et al., 2019)

- Energy depletion: finite psychophysiological resources
- Motivational control: cost-benefit analysis based on increasing effort





Aims and approach

Main goals:

Better understanding Workaholism by investigating its **affective nature**: how it might impact on work-related **momentary Mood**, its **reactivity** to workload, and its **temporal trajectory** over a typical workday

Research approach:

Experience Sampling Methods (\mathbf{ESM}): Repeated real-time sampling of psychological states, experiences, and daily activities

(Beal, 2015; Gabriel et al., 2019)



Hypotheses

- 1. Workaholism predicts $low\ Mood$ levels experienced at work Acting as individual-level stressor, sick relationship with one's work
- 2. Workaholism strengthens the negative impact of momentary Workload Additional self-imposed demands (perfectionism, obsessiveness) \rightarrow more vulnerable
- 3. Workaholism *strengthens* the negative impact of Workday Accumulation Multitasking even if already busy, difficulties to delegate, suppression of recovery





Method

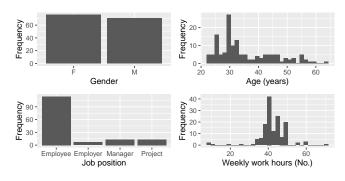




Participants

N = 215 recruited from university staff + authors & collaborators' private network, focusing on full-time, white-collar, back-office workers. Voluntary & anonymous.

- ## 147 included participants
- ## excluded 64 participants with no response to the preliminary or any ESM qs
- ## excluded 3 participants (37 observations) due to incompatible jobs (e.g., nurse)
- ## excluded 258 observations (1 participant) due to missing data (listwise deletion)



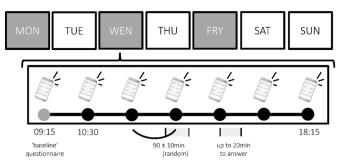




Procedure

Initial contact → email including study description, link to online **preliminary qs** (Workaholism, demographics) → instructions for installing & using the open-source Sensus Mobile app (Xiong et al., 2016)

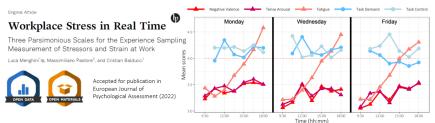
App scheduled to send 7 ESM questionnaires per day (Mood, Workload), over three nonconsecutive workdays:







Measures: Experience Sampling Method



Open data & materials with ESM psychometrics: https://osf.io/87a9p/

- Affective Strain: "How do you feel right now?"
 Multidimensional Mood Questionnaire (Wilhelm & Schoebi, 2007)
 using 2 (original) or 3 (updated) seven-point VAS items for each dimension:
 - (1) Negative Valence (e.g., "well-unwell")
 - (2) Tense Arousal (e.g., "calm-tense")
 - (3) Fatigue (e.g., "awake-tired")
- Workload: Task Demand Scale using 4 seven-point VAS items (e.g., "the job task required to work very fast")





Workaholism & Worday Accumulation

- Workaholism: DUtch Work Addiction Scale (Schaufeli et al., 2009)
 using 10 four-point Likert items for Working Compulsively (e.g., "I feel that there's something inside me that drives me to work hard") & Excessively (e.g., "I stay busy and keep many irons in the fire"); α [95% CI] = .79 [.74, .84]
- Workday accumulation (WDA) = No. of hours since 9:00 AM





Data analysis

Linear mixed-effects regression (LMER) modeling with the lme4 R package

- 1. Null model: random variability
- 2. Level-2 covariates: Gender (F/M), Age (years), Job Position (lower/upper)
- 3. Workaholism (1-4)
- 4. Level-1 predictors: Workload (1-7), WDA (hours)
- 5. Cross-level interaction (Workaholism on Workload or WDA)





Results





Descriptives & correlations

Considered sample: 1523 observations from 147 participants

response rate = 57.6 ± 20.4 %

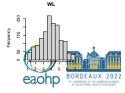
	N	Mean	ICC	NVA	TAR	FAT	WL	WHLSM
NVA	1523	3.36 (1.1)	0.39	1.00	0.83	0.84	0.19	
TAR	1523	3.45 (1.21)	0.39	0.81	1.00	0.87	0.30	
FAT	1523	3.51 (1.16)	0.42	0.80	0.84	1.00	0.18	
WL	1523	4.09 (1.28)	0.40	0.19	0.31	0.18	1.00	
WHLSM	147	$2.41\ (0.52)$		0.17	0.21	0.20	0.30	1.00
age	147	35.11 (9.63)		0.04	0.08	0.03	0.15	-0.11





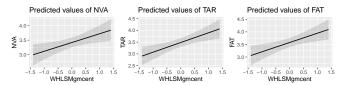






Hypothesis 1: Main effect of Workaholism

Higher individual-level Workaholism predicts higher average NVA, TAR, & FAT.



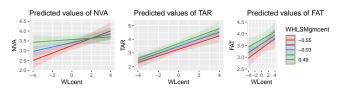
		NVA			TAR			FAT		
Predictors	B (SE) CI t		t	t B (SE) CI t				B (SE) CI		
(Intercept)	3.42 (0.09)	3.25 – 3.59	39.48	3.48 (0.09)	3.30 – 3.66	37.53	3.58 (0.09)	3.39 – 3.76	38.70	
gender [M]	0.00 (0.12)	-0.24 - 0.24	0.00	0.10 (0.13)	-0.16 - 0.36	0.75	-0.02 (0.13)	-0.27 - 0.24	-0.12	
Age gmcent	0.01 (0.01)	-0.01 - 0.02	0.89	0.01 (0.01)	-0.00 - 0.02	1.50	0.01 (0.01)	-0.01 - 0.02	0.94	
position rec [Employer/Manager]	-0.30 (0.18)	-0.66 - 0.05	-1.66	-0.36 (0.19)	-0.74 - 0.02	-1.86	-0.38 (0.19)	-0.76 - 0.00	-1.95	
WHLSMgmcent	0.30 (0.12)	0.07 - 0.54	2.54	0.41 (0.13)	0.16 - 0.66	3.21	0.37 (0.13)	0.12 - 0.62	2.89	





Hypothesis 2: Interaction with Workload

Individual-level Workaholism weakens the impact of Workload on NVA.



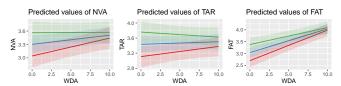
		NVA			TAR			FAT	
Predictors	B (SE)	CI	t	B (SE)	CI	t	B (SE)	CI	t
(Intercept)	3.42 (0.09)	3.25 – 3.59	39.63	3.49 (0.09)	3.31 – 3.67	37.95	3.58 (0.09)	3.39 – 3.76	38.71
gender [M]	-0.01 (0.12)	-0.25 - 0.23	-0.11	0.08 (0.13)	-0.18 - 0.33	0.60	-0.02 (0.13)	-0.28 - 0.24	-0.14
Age gmcent	0.01 (0.01)	-0.01 - 0.02	0.84	0.01 (0.01)	-0.00 - 0.02	1.66	0.01 (0.01)	-0.01 - 0.02	0.94
position rec [Employer/Manager]	-0.27 (0.18)	-0.63 - 0.08	-1.51	-0.33 (0.19)	-0.71 - 0.04	-1.75	-0.38 (0.19)	-0.75 - 0.00	-1.94
WHLSMgmcent	0.30 (0.12)	0.06 - 0.53	2.49	0.41 (0.13)	0.16 - 0.66	3.18	0.37 (0.13)	0.12 - 0.62	2.88
WLcent	0.11 (0.03)	0.05 - 0.17	3.43	0.26 (0.03)	0.19 - 0.33	7.77	0.09 (0.03)	0.03 - 0.15	2.92
WHLSMgmcent * WLcent	-0.15 (0.06)	-0.260.03	-2.48	0.03 (0.06)	-0.10 - 0.15	0.43	-0.02 (0.06)	-0.14 - 0.10	-0.38





Hypothesis 3: Interaction with WDA

Individual-level Workaholism weakens the impact of WDA on NVA & FAT.



		NVA			TAR			FAT	
Predictors	B (SE)	CI	t	B (SE)	CI	t	B (SE)	CI	t
(Intercept)	3.32 (0.10)	3.12 – 3.51	32.93	3.45 (0.11)	3.23 – 3.67	30.90	3.06 (0.11)	2.84 - 3.27	27.69
gender [M]	0.00 (0.12)	-0.24 - 0.25	0.03	0.11 (0.13)	-0.15 - 0.37	0.84	-0.01 (0.13)	-0.26 - 0.25	-0.05
Age gmcent	0.01 (0.01)	-0.01 - 0.02	0.96	0.01 (0.01)	-0.00 - 0.02	1.47	0.01 (0.01)	-0.01 - 0.02	1.07
position rec [Employer/Manager]	-0.30 (0.18)	-0.66 - 0.05	-1.67	-0.39 (0.19)	-0.770.01	-2.01	-0.38 (0.19)	-0.760.00	-1.97
WHLSMgmcent	0.50 (0.16)	0.20 - 0.81	3.23	0.62 (0.18)	0.28 - 0.97	3.55	0.65 (0.17)	0.31 - 0.99	3.78
WDA	0.02 (0.01)	0.00 - 0.04	2.04	0.01 (0.01)	-0.02 - 0.03	0.51	0.10 (0.01)	0.08 - 0.12	9.14
WHLSMgmcent * WDA	-0.04 (0.02)	-0.070.00	-2.08	-0.04 (0.02)	-0.08 - 0.00	-1.83	-0.05 (0.02)	-0.100.01	-2.67





Discussion





Alternative interpretations



Workaholics are more resistant/tolerant to increased workload and sustained work time compared to their colleagues.

However, recent studies failed to support a relationship between Workaholism and Job Performance (e.g., Balducci et al. 2020)





Alternative interpretations



Workaholics are more resistant/tolerant to increased workload and sustained work time compared to their colleagues.

However, recent studies failed to support a relationship between Workaholism and Job Performance (e.g., Balducci et al. 2020)



Workaholics are just unaware of, or insensitive to the short-term effects of job stressors, eventually resulting in the same outcomes affecting their colleagues, or even worse.

Emotion regulation?





Practical (and theoretical) implications

If we trust our second interpretation:

- Training on Emotion (Dis)Regulation e.g., DERS: emotional awareness ("I don't pay attention on how I feel") and emotional clarity ("I have difficulties to make sense of my feelings")
- Training on Self-Regulation (e.g., biofeedback)
- Training on Time Management and Recovery
 Needs-based off-job crafting, Detachment & Reattachment
 - \rightarrow Symposium 38: Field interventions on recovery from job stress:

The beauty and the beast (Syrek, de Bloom, Friday 8, Room 33)

 Recovery systems: e.g., imposed working time control, timekeeping systems ('right to disconnect'), unlimited paid time off policies





Limitations & future directions

Limitations:

- small sample (<150) & small time frame (3 days)
- Only 13.6% employers & manager (++ Workaholism) (Taris et al., 2012)
- ullet Only self-report measures \to cannot disambiguate the two interpretations

Future directions:

- Larger sample, longer periods, and physiological indicators (e.g., HRV)
- Covering leisure time (both during & outside work)



Background Method Results **Discussion** References Extra slides

Merci de votre attention!











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 \rightarrow Early career showcase - Workplace Stress in Real-Time (Friday 8, 10:30, Room 33)





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Extra slides





Complete models with 2 items (WL)

		NVA			TAR			FAT		
Predictors	B (SE)	CI	t	B (SE)	CI	t	B (SE)	CI	t	
(Intercept)	3.31 (0.10)	3.12 - 3.51	33.87	3.45 (0.10)	3.25 – 3.66	33.15	3.06 (0.10)	2.86 - 3.26	29.72	
gender [M]	-0.01 (0.12)	-0.25 - 0.23	-0.11	0.08 (0.13)	-0.18 - 0.33	0.59	-0.02 (0.13)	-0.28 - 0.24	-0.13	
Age gmcent	0.01 (0.01)	-0.01 - 0.02	0.86	0.01 (0.01)	-0.00 - 0.02	1.66	0.01 (0.01)	-0.01 - 0.02	1.11	
position rec [Employer/Manager]	-0.27 (0.18)	-0.62 - 0.09	-1.48	-0.33 (0.19)	-0.71 - 0.04	-1.74	-0.35 (0.19)	-0.73 - 0.03	-1.81	
WHLSMgmcent	0.30 (0.12)	0.06 - 0.53	2.47	0.41 (0.13)	0.15 - 0.66	3.17	0.36 (0.13)	0.11 - 0.61	2.80	
WLcent	0.11 (0.03)	0.05 - 0.17	3.45	0.26 (0.03)	0.20 - 0.33	7.80	0.09 (0.03)	0.03 - 0.15	3.13	
WDA	0.02 (0.01)	0.00 - 0.04	2.31	0.01 (0.01)	-0.01 - 0.02	0.70	0.10 (0.01)	0.08 - 0.12	11.41	
WHLSMgmcent * WLcent	-0.15 (0.06)	-0.270.03	-2.55	0.03 (0.06)	-0.10 - 0.15	0.42	-0.04 (0.06)	-0.15 - 0.07	-0.65	
Random Effects										
σ^2	0.68			0.77			0.66			
τ_{00}	0.47 _{ID}			0.54 _{ID}			0.54 _{ID}			
τ_{11}	0.04 ID	WLcent		0.06 _{ID}	WLcent		0.04 ID.WLcent			
ρ_{01}	0.21 _{ID}			0.35 _{ID}			-0.02 _{ID}			
N	147 _{ID}			147 _{ID}			147 _{ID}			
Observations	1523			1523			1523			
$Marginal\ R^2\ /\ Conditional\ R^2$	0.036 /	0.449		0.078 /	0.476		0.084 / 0.512			





Complete models with 2 items (WDA)

		NVA			TAR		FAT			
Predictors	B (SE)	CI	t	B (SE)	CI	t	B (SE)	CI	t	
(Intercept)	3.31 (0.10)	3.11 – 3.51	32.79	3.44 (0.11)	3.23 – 3.66	31.21	3.05 (0.11)	2.84 - 3.27	27.50	
gender [M]	0.01 (0.12)	-0.24 - 0.25	0.04	0.11 (0.13)	-0.15 - 0.37	0.85	-0.01 (0.13)	-0.26 - 0.25	-0.04	
Age gmcent	0.01 (0.01)	-0.01 - 0.02	0.97	0.01 (0.01)	-0.00 - 0.02	1.55	0.01 (0.01)	-0.01 - 0.02	1.08	
position rec [Employer/Manager]	-0.30 (0.18)	-0.66 - 0.05	-1.68	-0.40 (0.19)	-0.780.02	-2.07	-0.39 (0.19)	-0.770.01	-1.99	
WHLSMgmcent	0.51 (0.16)	0.20 - 0.82	3.26	0.65 (0.17)	0.31 - 0.99	3.73	0.66 (0.17)	0.32 – 1.00	3.80	
WLcent	0.10 (0.02)	0.05 - 0.14	4.17	0.25 (0.02)	0.20 - 0.30	10.28	0.09 (0.02)	0.05 - 0.14	4.16	
WDA	0.02 (0.01)	0.00 - 0.04	2.10	0.01 (0.01)	-0.01 - 0.03	0.70	0.10 (0.01)	0.08 - 0.12	9.10	
WHLSMgmcent * WDA	-0.04 (0.02)	-0.070.00	-2.16	-0.04 (0.02)	-0.080.00	-2.17	-0.06 (0.02)	-0.100.02	-2.70	
Random Effects										
σ^2	0.71			0.80			0.65			
τ_{00}	0.54 _{ID}			0.70 _{ID}			0.78 _{ID}			
τ_{11}	0.00 ID	.WDA		0.00 ID	.WDA		0.01 _{ID}	.WDA		
Ρ01	-0.38 _{II}	D		-0.55 _{ID}			-0.55 _{ID}			
N	$147 \; \mathrm{I\!D}$			147 _{ID}			147 _{ID}			
Observations	1523			1523			1523			
Marginal R2 / Conditional R2	0.035 /	0.422		0.081 /	0.453		0.092 / 0.525			





However...

Updating results (post EAOHP2022 submission)

- Validation study accepted at EJPA:
 3 items per Mood dimension even better than the original 2-item versions
- Re-analysis with 3 items per dimension:
 Failed to replicate the interaction with WDA on Fatigue,
 while confirming those found for NVA
- Additional level-2 interaction Workaholism:Gender on NVA: stronger Workaholism effect in women than in men
- Consistent results across several robustness checks (e.g., different subsamples, different software)



Complete models with 3 items (WL)

		NVA			TAR			FAT		
Predictors	B (SE)	CI	t	B (SE)	CI	t	B (SE)	CI	t	
(Intercept)	3.25 (0.11)	3.04 - 3.47	29.54	3.32 (0.12)	3.09 – 3.56	27.76	2.86 (0.12)	2.61 - 3.10	22.90	
gender [M]	0.05 (0.12)	-0.20 - 0.29	0.37	0.12 (0.13)	-0.14 - 0.38	0.90	-0.16 (0.12)	-0.41 - 0.08	-1.31	
Age gmcent	0.01 (0.01)	-0.01 - 0.02	1.18	0.01 (0.01)	-0.00 - 0.03	1.77	0.00 (0.01)	-0.01 - 0.02	0.74	
position rec [Employer/Manager]	-0.38 (0.18)	-0.740.03	-2.10	-0.43 (0.19)	-0.810.05	-2.22	-0.34 (0.18)	-0.69 - 0.02	-1.84	
WHLSMgmcent	0.24 (0.12)	0.00 - 0.47	2.00	0.35 (0.13)	0.10 - 0.60	2.71	0.18 (0.12)	-0.05 - 0.42	1.52	
WLcent	0.12 (0.03)	0.06 - 0.17	3.86	0.25 (0.03)	0.19 - 0.31	7.95	0.02 (0.03)	-0.04 - 0.09	0.67	
WDA	0.03 (0.01)	0.01 - 0.04	2.80	0.02 (0.01)	-0.00 - 0.04	1.56	0.16 (0.01)	0.14 - 0.19	12.84	
WHLSMgmcent * WLcent	-0.14 (0.06)	-0.250.03	-2.43	0.01 (0.06)	-0.10 - 0.12	0.17	-0.12 (0.07)	-0.25 - 0.01	-1.78	
Random Effects										
σ^2	0.59			0.64			0.62			
τ ₀₀	0.69 _{ID}			0.87 _{ID}			1.11 _{ID}			
τ_{11}	0.00 ID	.WDA		0.00 _{ID}	.WDA		0.01 _{ID}	.WDA		
	0.05 ID.WLcent			0.05 _{ID}	.WLcent		0.08 ID.WLcent			
Ρ01	-0.56			-0.61			-0.76			
	0.31			0.37			-0.07			
N	$145 \mathrm{ID}$			$145 \mathrm{ID}$			$145 \mathrm{ID}$			
Obcognitions	1520			1529			1529			





Complete models with 3 items (WDA)

		NVA			TAR			FAT		
Predictors	B (SE)	CI	t	B (SE)	CI	t	B (SE)	CI	t	
(Intercept)	3.26 (0.11)	3.05 - 3.48	29.65	3.33 (0.12)	3.09 – 3.56	27.83	2.87 (0.12)	2.62 - 3.11	23.03	
gender [M]	0.05 (0.12)	-0.19 - 0.29	0.40	0.12 (0.13)	-0.14 - 0.38	0.90	-0.16 (0.12)	-0.41 - 0.08	-1.30	
Age gmcent	0.01 (0.01)	-0.00 - 0.02	1.21	0.01 (0.01)	-0.00 - 0.03	1.78	0.00 (0.01)	-0.01 - 0.02	0.74	
position rec [Employer/Manager]	-0.39 (0.18)	-0.740.03	-2.12	-0.43 (0.19)	-0.810.05	-2.22	-0.34 (0.18)	-0.69 - 0.02	-1.85	
WHLSMgmcent	0.52 (0.17)	0.19 - 0.86	3.04	0.54 (0.19)	0.17 - 0.91	2.90	0.40 (0.20)	0.00 - 0.81	1.98	
WLcent	0.11 (0.03)	0.05 - 0.17	3.72	0.25 (0.03)	0.19 - 0.31	8.07	0.02 (0.04)	-0.05 - 0.09	0.59	
WDA	0.02 (0.01)	0.01 - 0.04	2.67	0.01 (0.01)	-0.00 - 0.03	1.48	0.16 (0.01)	0.14 - 0.19	12.83	
WHLSMgmcent * WDA	-0.04 (0.02)	-0.070.00	-2.15	-0.03 (0.02)	-0.07 - 0.01	-1.44	-0.03 (0.02)	-0.08 - 0.01	-1.43	
Random Effects										
σ^2	0.59			0.64			0.62			
τ_{00}	0.68 ID			0.87 _{ID}			1.10 _{ID}			
τ_{11}	$0.00~\mathrm{m}$.WDA		0.00 ID	.WDA		0.01 _{ID.WDA}			
	0.05 _{ID}	.WLcent	0.05 ID	.WLcent		0.08 ID.WLcent				
ρ ₀₁	-0.56			-0.61			-0.75			
	0.32			0.38			-0.08			
N	145 _{ID}			145 _{ID}			145 _{ID}			
Ohaanastiaaa	1520			1520			1520			





3 items (interaction with Gender)

		NVA			TAR			FAT		
Predictors	B (SE)	CI	t	B (SE)	CI	t	B (SE)	CI	t	
(Intercept)	3.25 (0.10)	3.05 – 3.46	31.80	3.31 (0.11)	3.10 - 3.53	30.01	2.87 (0.11)	2.66 - 3.08	26.98	
gender [M]	0.04 (0.12)	-0.19 - 0.28	0.35	0.11 (0.13)	-0.15 - 0.36	0.80	-0.17 (0.12)	-0.41 - 0.07	-1.39	
Age gmcent	0.01 (0.01)	-0.00 - 0.02	1.25	0.01 (0.01)	-0.00 - 0.03	1.80	0.01 (0.01)	-0.01 - 0.02	0.78	
position rec [Employer/Manager]	-0.43 (0.18)	-0.780.08	-2.41	-0.44 (0.19)	-0.820.05	-2.24	-0.33 (0.18)	-0.68 - 0.03	-1.80	
WHLSMgmcent	0.63 (0.17)	0.29 - 0.96	3.64	0.70 (0.19)	0.33 – 1.07	3.74	0.42 (0.17)	0.07 - 0.76	2.39	
WLcent	0.10 (0.02)	0.06 - 0.15	4.86	0.24 (0.02)	0.19 - 0.28	10.54	0.01 (0.02)	-0.03 - 0.06	0.49	
WDA	0.03 (0.01)	0.01 - 0.05	3.46	0.02 (0.01)	0.00 - 0.04	2.26	0.16 (0.01)	0.15 - 0.18	18.06	
gender [M] * WHLSMgmcent	-0.68 (0.23)	-1.130.23	-2.95	-0.63 (0.25)	-1.120.14	-2.52	-0.41 (0.23)	-0.87 - 0.04	-1.77	
Random Effects										
σ^2	0.66			0.71			0.78			
τ_{00}	0.45 _{ID}			0.54 _{ID}			0.45 _{ID}			
N	$145~\mathrm{I\!D}$			$145 \; \mathrm{ID}$			$145 \; \mathrm{ID}$			
Observations	1538			1538			1538			
Marginal R2 / Conditional R2	0.065 /	0.444		0.095 /	0.488		0.148 / 0.461			



