

Supplementary Materials

Table 1. Influence of digitalized work and other job characteristics at the individual- and workplace-level on supervisory bullying; stepwise model (workplace-level random effects regressions).

	Bullying from supervisors.								
	0	I	II	III	IV	V	VI	VII	VII
Job characteristics									
Digitalized work		−0.115*	−0.115*	−0.144**	−0.119*	−0.121*	−0.122*	−0.134*	−0.135*
		(0.056)	(0.052)	(0.050)	(0.049)	(0.049)	(0.049)	(0.058)	(0.058)
Machine operator				0.028**	0.023*	0.012	0.012	0.012	0.012
				(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Competence				−0.325***	−0.293***	−0.223***	−0.229***	−0.237***	−0.237***
				(0.053)	(0.053)	(0.052)	(0.052)	(0.052)	(0.053)
Job autonomy					−0.200***	−0.175***	−0.178***	−0.179***	−0.175***
					(0.023)	(0.023)	(0.023)	(0.023)	(0.024)
Routine work					0.046***	0.052***	0.051***	0.051***	0.048***
					(0.014)	(0.013)	(0.012)	(0.012)	(0.012)
Psychological stress						0.167***	0.159***	0.158***	0.157***
						(0.018)	(0.017)	(0.017)	(0.017)
Physically demanding work						0.108***	0.107***	0.107***	0.109***
						(0.016)	(0.016)	(0.016)	(0.017)
Supervisory responsibility							0.074*	0.073*	0.070*
							(0.029)	(0.029)	(0.029)
Hours worked							0.004	0.004	0.004
							(0.003)	(0.003)	(0.003)
Works in a team							−0.113*	−0.111*	−0.109*
							(0.048)	(0.048)	(0.047)
Occupational change within the last year							0.106	0.108	0.107
							(0.075)	(0.075)	(0.075)
Improved occupational position within the last year							−0.228**	−0.228**	−0.232**
							(0.089)	(0.088)	(0.089)
Workplace characteristics									
Share of employees working with Digitalized work/100								0.124	0.139
								(0.175)	(0.191)
Employees working with machines								0.003	−0.021
								(0.040)	(0.039)
Share of competent employees/100								0.316	0.331

								(0.242)	(0.242)
Employees having job autonomy									−0.076
									(0.065)
Employees working in routine jobs									0.080
									(0.071)
Employees having psychological stress									0.059
									(0.074)
Employees working in physically demanding jobs									−0.056
									(0.070)
Controlled for:									
Demographic characteristics and personality	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Qualifications	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ISCO-1-digit occupations	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Workplace composition	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industries	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	1.851**	1.860**	1.219**	1.482**	1.357**	1.022*	0.961*	0.666	0.631
	(0.019)	(0.019)	(0.420)	(0.438)	(0.442)	(0.412)	(0.405)	(0.419)	(0.468)
Variance (random effects)									
Individuals	−2.197**	−2.190**	−2.480**	−2.457**	−2.608**	−2.735**	−2.757**	−2.811**	−2.916**
	(0.167)	(0.161)	(0.264)	(0.257)	(0.301)	(0.369)	(0.386)	(0.429)	(0.469)
Workplaces	−0.146**	−0.147**	−0.159**	−0.169**	−0.185**	−0.216**	−0.220**	−0.220**	−0.220**
	(0.015)	(0.015)	(0.015)	(0.015)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
N employees	3612	3612	3612	3612	3612	3612	3612	3612	3612
N workplaces	100	100	100	100	100	100	100	100	100

LEEP-B3 data; dependent variables: supervisory bullying; clustered robust standard errors in parenthesis. Controlled for demographic characteristics (age, age squared, women, immigrant), personality (extraversion, conscientiousness, neuroticism, compatibility, openness), qualifications (education in years centered at 9 years, tenure in years), ISCO 1-digit occupations), workplace composition (Share of women/100, Share of women squared/1000, Share of immigrants/100, Share of employees with high school/100), industry (Ref. cat.: Manufacturing; Trade, hospitality, and transportation; Banking and insurance; Social, private, and public services). + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 2. Influence of digitalized work and other job characteristics at the individual- and workplace-level on coworker bullying; stepwise model (workplace-level random effects regressions).

	Bullying from coworkers								
	0	I	II	III	IV	V	VI	VII	VIII
Job characteristics									
Digitalized work		−0.074 (0.049)	−0.055 (0.040)	−0.079 ⁺ (0.040)	−0.065 (0.040)	−0.066 (0.041)	−0.067 (0.041)	−0.062 (0.045)	−0.061 (0.045)
Machine operator				0.027 ^{**} (0.010)	0.025 [*] (0.010)	0.017 ⁺ (0.009)	0.016 ⁺ (0.009)	0.017 ⁺ (0.010)	0.017 ⁺ (0.010)
Competence				−0.262 ^{***} (0.050)	−0.246 ^{***} (0.049)	−0.193 ^{***} (0.048)	−0.197 ^{***} (0.049)	−0.201 ^{***} (0.048)	−0.199 ^{***} (0.048)
Job autonomy					−0.104 ^{***} (0.018)	−0.085 ^{***} (0.019)	−0.086 ^{***} (0.019)	−0.087 ^{***} (0.019)	−0.094 ^{***} (0.019)
Routine work					0.025 [*] (0.013)	0.030 [*] (0.012)	0.029 [*] (0.012)	0.030 [*] (0.012)	0.026 [*] (0.012)
Psychological stress						0.125 ^{***} (0.015)	0.120 ^{***} (0.015)	0.120 ^{***} (0.015)	0.119 ^{***} (0.015)
Physically demanding work						0.080 ^{***} (0.013)	0.079 ^{***} (0.013)	0.079 ^{***} (0.013)	0.080 ^{***} (0.014)
Supervisory responsibility							0.044 ⁺ (0.026)	0.042 (0.027)	0.041 (0.027)
Hours worked							0.002 (0.002)	0.003 (0.002)	0.002 (0.002)
Works in a team							−0.012 (0.040)	−0.009 (0.040)	−0.008 (0.040)
Occupational change within the last year							0.055 (0.064)	0.055 (0.064)	0.056 (0.064)
Improved occupational position within the last year							−0.161 [*] (0.071)	−0.161 [*] (0.070)	−0.158 [*] (0.070)
Workplace characteristics									
Share of employees working with digitalized work/100								−0.020 (0.132)	−0.016 (0.125)
Employees working with machines								−0.030 (0.037)	−0.025 (0.039)
Share of competent employees/100								0.199 (0.275)	0.138 (0.270)
Employees having job autonomy									0.116 ⁺ (0.062)

Employees working in routine jobs									0.086 (0.060)
Employees having psychological stress									0.013 (0.073)
Employees working in physically demanding jobs									-0.041 (0.059)
Controlled for:									
Demographic characteristics and personality	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Qualifications	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ISCO-1-digit occupations	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Workplace composition	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industries	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	1.733*** (0.017)	1.739*** (0.017)	2.325*** (0.409)	2.524*** (0.418)	2.456*** (0.416)	2.208*** (0.404)	2.136*** (0.415)	2.032*** (0.473)	1.949*** (0.502)
Variance (random effects)									
Individuals	-2.210*** (0.201)	-2.209*** (0.195)	-2.667*** (0.389)	-2.592*** (0.364)	-2.554*** (0.337)	-2.618*** (0.375)	-2.642*** (0.395)	-2.685*** (0.412)	-2.801*** (0.465)
Workplaces	-0.261*** (0.017)	-0.261*** (0.017)	-0.281*** (0.016)	-0.290*** (0.016)	-0.296*** (0.017)	-0.317*** (0.016)	-0.319*** (0.016)	-0.319*** (0.016)	-0.319*** (0.016)
N employees	3612	3612	3612	3612	3612	3612	3612	3612	3612
N workplaces	100	100	100	100	100	100	100	100	100

LEEP-B3 data; dependent variables: supervisory bullying; clustered robust standard errors in parenthesis. Controlled for demographic characteristics (age, age squared, women, immigrant), personality (extraversion, conscientiousness, neuroticism, compatibility, openness), qualifications (education in years centered at 9 years, tenure in years), ISCO 1-digit occupations), workplace composition (Share of women/100, Share of women squared/1000, Share of immigrants/100, Share of employees with high school/100), industry (Ref. cat.: Manufacturing; Trade, hospitality, and transportation; Banking and insurance; Social, private, and public services). + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 3. Correlation between bullying and other main variables at the individual level.

	Superv. bully.	Bully. colleag.	Digital systems	Machines	Competence	Job Autonomy	Routine work	Psych. stress	Physic. demand.	Superv. respons.	Hours worked	Team	Occup. change	Improved position
Supervisory bullying	1.00													
Bullying by colleagues	0.46	1.00												
Works with digital systems	−0.03	−0.02	1.00											
Machines operator (sum index)	0.08	0.08	0.14	1.00										
Competence	−0.14	−0.13	−0.05	−0.18	1.00									
Job autonomy	−0.22	−0.15	0.07	−0.07	0.10	1.00								
Routine work	0.11	0.10	−0.07	0.04	0.01	−0.23	1.00							
Psychological stress	0.22	0.20	0.03	−0.00	−0.11	−0.02	−0.09	1.00						
Physically demanding work	0.22	0.21	−0.05	0.11	−0.11	−0.16	0.12	0.25	1.00					
Supervisory responsibility	0.02	0.01	0.09	0.07	0.02	0.18	−0.16	0.13	0.02	1.00				
Hours worked	0.03	0.01	0.11	0.17	0.04	0.09	−0.08	0.07	−0.02	0.20	1.00			
Works in a team	−0.05	−0.01	0.00	0.04	−0.02	−0.01	−0.02	−0.01	−0.00	0.03	0.01	1.00		
Occupational change within the last year	−0.03	−0.03	0.03	−0.01	−0.02	0.03	−0.08	0.05	−0.01	0.06	0.05	0.03	1.00	
Improved occupational position within the last year	−0.08	−0.07	0.02	−0.01	0.00	0.08	−0.11	0.01	−0.02	0.09	0.07	0.03	0.78	1.00

Table 4. Correlation between bullying and other main variables at the workplace level.

	Superv. bully.	Bully. colleag.	% of women	% of immigrants	% of high school	% of digit. systems	Machines	Competent	Job autonomy	Routine jobs	Psych. stress	Physic. demand.
Supervisory bullying	1.00											
Bullying by colleagues	0.46	1.00										
Share of women	−0.00	0.01	1.00									
Share of immigrants	0.01	0.02	−0.03	1.00								
Share of employees with high school	−0.08	−0.08	0.11	0.04	1.00							
Share of employees working with digitalized systems	0.00	−0.01	−0.49	−0.07	0.03	1.00						
Employees working with machines	0.03	0.01	−0.75	−0.01	−0.18	0.43	1.00					
Share of employees being competent	−0.01	−0.01	0.15	0.02	0.01	−0.20	−0.25	1.00				
Employees having job autonomy	−0.09	−0.04	−0.15	−0.07	0.45	0.13	−0.13	0.13	1.00			
Employees working in routine jobs	0.09	0.08	−0.05	0.17	−0.64	−0.09	0.24	0.05	−0.44	1.00		
Employees having psychological stress	0.01	0.01	0.19	−0.00	0.25	−0.01	−0.27	0.01	0.26	−0.27	1.00	
Employees working in physically demanding jobs	0.08	0.08	0.37	0.14	−0.53	−0.23	−0.15	−0.02	−0.40	0.50	0.06	1.00

Table S5: Influence of digitalized work and other job characteristics at the individual- and workplace-level on bullying from supervisors and coworkers (workplace-level random effects regressions).

	Bullying from supervisors						Bullying from coworkers					
	All		High school		No high school		All		High school		No high school	
	I		II		III		IV		V		VI	
	b	se	b	se	b	se	b	se	b	se	b	se
Job characteristics												
Digitalized work	-0.135*	0.058	-0.154*	0.076	-0.141 ⁺	0.081	-0.061	0.045	0.009	0.059	-0.147 ⁺	0.077
Machines operator	0.012	0.010	0.010	0.014	0.013	0.015	0.017 ⁺	0.010	0.030**	0.011	0.003	0.016
Competence	-0.237**	0.053	-0.183*	0.073	-0.288**	0.073	-0.199**	0.048	-0.087 ⁺	0.052	-0.296**	0.069
	*				*		*				*	
Job autonomy	-0.175**	0.024	-0.224**	0.033	-0.150**	0.032	-0.094**	0.019	-0.151**	0.028	-0.057*	0.028
	*		*		*		*		*			
Routine work	0.048***	0.012	0.043*	0.020	0.053**	0.017	0.026*	0.012	0.032*	0.015	0.027	0.019
Psychological stress	0.157***	0.017	0.144***	0.023	0.166***	0.023	0.119***	0.015	0.088***	0.022	0.145***	0.021
Physically demanding work	0.109***	0.017	0.114***	0.024	0.110***	0.023	0.080***	0.014	0.096***	0.016	0.074***	0.021
Supervisory responsibility	0.070*	0.029	0.015	0.044	0.135**	0.043	0.041	0.027	0.010	0.041	0.080*	0.040
Hours worked	0.004	0.003	0.003	0.004	0.006	0.004	0.002	0.002	0.001	0.003	0.004	0.003
Works in a team	-0.109*	0.047	-0.114 ⁺	0.063	-0.095	0.067	-0.008	0.040	-0.001	0.050	0.010	0.065
Occupational change within the last year	0.107	0.075	0.118	0.089	0.120	0.103	0.056	0.064	0.037	0.069	0.091	0.090
Improved occupational position within the last year	-0.232**	0.089	-0.240*	0.108	-0.239*	0.119	-0.158*	0.070	-0.101	0.079	-0.239*	0.105
Workplace characteristics												
Share of employees working with digitalized work/100	0.139	0.191	0.420*	0.164	-0.154	0.271	-0.016	0.125	-0.230	0.185	0.024	0.167
Employees working with machines	-0.021	0.039	0.015	0.044	-0.077	0.056	-0.025	0.039	0.057	0.044	-0.122*	0.054
Competent employees/100	0.331	0.242	0.444	0.279	0.129	0.339	0.138	0.270	0.469 ⁺	0.263	-0.201	0.367
Share of women/100	-0.007	0.316	0.079	0.341	-0.283	0.418	-0.246	0.276	-0.012	0.331	-0.457	0.361
Share of women squared/1000	-0.032	0.282	-0.076	0.321	0.222	0.372	0.176	0.228	-0.107	0.308	0.436	0.320
Share of immigrants/100	-0.078	0.169	-0.015	0.181	-0.183	0.256	0.137	0.154	0.096	0.182	0.177	0.200
Share of employees with high school degrees/100	0.001	0.114	-0.289*	0.135	0.454**	0.155	0.003	0.098	-0.285**	0.106	0.342*	0.137
Employees having job autonomy	-0.076	0.065	-0.051	0.088	-0.117	0.096	0.116 ⁺	0.062	0.134	0.092	0.047	0.092
Employees working in routine jobs	0.080	0.071	0.165*	0.080	-0.008	0.081	0.086	0.060	0.085	0.074	0.044	0.061
Employees having psychological stress	0.059	0.074	0.197*	0.086	-0.082	0.112	0.013	0.073	0.003	0.091	0.031	0.102
Employees working in physically demanding jobs	-0.056	0.070	-0.192*	0.076	0.079	0.091	-0.041	0.059	-0.093	0.069	-0.019	0.087
Demographic characteristics and personality												
Age	0.320 ⁺	0.190	0.378	0.252	0.371	0.254	-0.325 ⁺	0.184	-0.299	0.251	-0.234	0.252

Age squared	-0.040 ⁺	0.023	-0.041	0.031	-0.052 ⁺	0.031	0.037 ⁺	0.022	0.040	0.030	0.022	0.031
Woman	-0.049	0.042	-0.047	0.049	-0.049	0.063	0.045	0.033	0.097 [*]	0.040	-0.022	0.051
Immigrant	-0.089 [*]	0.045	-0.065	0.051	-0.121 ⁺	0.069	-0.011	0.036	-0.012	0.039	-0.022	0.061
Extraversion	0.010	0.017	-0.026	0.026	0.054 [*]	0.027	-0.018	0.017	-0.045 [*]	0.022	0.020	0.026
Conscientiousness	-0.039 ⁺	0.023	-0.048 ⁺	0.027	-0.028	0.038	-0.014	0.023	-0.008	0.024	-0.024	0.034
Neuroticism	0.036	0.024	0.030	0.030	0.039	0.033	0.086 ^{***}	0.019	0.105 ^{***}	0.023	0.063 [*]	0.030
Compatibility	-0.042 ⁺	0.024	-0.031	0.031	-0.057	0.038	-0.047 [*]	0.019	-0.023	0.022	-0.068 [*]	0.034
Openness	0.058 ^{**}	0.023	0.044	0.035	0.061	0.038	0.090 ^{***}	0.023	0.093 ^{**}	0.030	0.084 ^{**}	0.031
Qualifications												
Education in years (centered at 9 years)	0.008	0.007	0.009	0.011	0.015	0.021	0.002	0.006	-0.006	0.009	0.027	0.021
Tenure in years	0.003	0.002	0.004	0.003	0.004	0.003	0.003 ⁺	0.002	0.001	0.003	0.004 ⁺	0.002
ISCO-1-digit occupations:												
<i>Ref.cat. Professionals</i>												
Legislators, senior officials, managers	-0.025	0.062	0.017	0.070	-0.008	0.166	0.071	0.068	0.046	0.069	0.209	0.166
Technicians, associate professionals	0.061	0.042	0.028	0.044	0.169 ⁺	0.093	0.076 ⁺	0.040	0.040	0.041	0.094	0.094
Clerks	0.044	0.055	0.037	0.065	0.151	0.106	0.088 ⁺	0.048	0.120 ⁺	0.063	0.053	0.105
Service workers, shop, market sales	-0.008	0.077	-0.157	0.111	0.131	0.119	0.143 ⁺	0.078	-0.164	0.109	0.247 [*]	0.116
Skilled agricultural, fishery workers	0.082	0.252	-0.470	0.352	0.454 [*]	0.222	0.097	0.210	-0.662 ^{**}	0.161	0.424 [*]	0.168
Craft, related trades workers	0.086	0.074	0.072	0.123	0.219 ⁺	0.117	0.134 [*]	0.059	0.116	0.116	0.176 ⁺	0.101
Plant, machine operators, assembler	-0.019	0.103	0.102	0.212	0.118	0.126	0.165 [*]	0.079	0.193	0.149	0.249 [*]	0.118
Elementary occupations	-0.007	0.083	0.026	0.253	0.153	0.117	0.116	0.074	-0.173	0.325	0.258 [*]	0.119
Industries												
<i>Ref. cat: Manufacturing</i>												
Trade, hospitality, and transportation	0.036	0.057	-0.057	0.069	0.065	0.079	-0.066	0.063	-0.108	0.085	-0.073	0.091
Banking and insurance	-0.069	0.072	-0.022	0.068	-0.132	0.097	-0.079	0.068	0.041	0.064	-0.287 ^{**}	0.083
Social, private, and public services	0.003	0.086	0.069	0.078	-0.121	0.114	0.013	0.080	0.098	0.077	-0.110	0.097
Constant	0.631	0.468	0.478	0.559	0.558	0.688	1.949 ^{***}	0.502	1.559 [*]	0.656	2.277 ^{***}	0.639
Variance (random effects)												
Individuals	-2.916 ^{**}	0.469	-18.410	31.503	-3.755	4.563	-2.801 ^{**}	0.465	-16.281	36.96 ₉	-22.052	27.594
Workplaces	-0.220 ^{**}	0.014	-0.271 ^{**}	0.021	-0.181 ^{**}	0.018	-0.319 ^{**}	0.016	-0.392 ^{**}	0.019	-0.266 ^{**}	0.022
N employees	3612		1932		1680		3612		1931		1681	
N workplaces	100		100		100		100		100		100	

Dependent variables supervisory and coworker bullying; LEEP-B3 data. Clustered robust standard errors. + p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001.

Table 6. Robustness checks: Influence of digitalized work and other job characteristics at the individual- and workplace-level on bullying from supervisors (workplace-level random effects regressions).

	<i>Manufacturing</i>						<i>Public administration, education and health sectors</i>					
	All		No high school		No high school		All		No high school		No high school	
	I		II		III		IV		V		VI	
Job characteristics												
Digitalized work	-0.218***	(0.062)	-0.210**	(0.072)	-0.212*	(0.086)	-0.040	(0.161)	-0.138	(0.126)	0.156	(0.358)
Machines operator	0.045**	(0.017)	0.079**	(0.026)	0.026	(0.024)	-0.006	(0.016)	-0.018	(0.023)	0.015	(0.025)
Competence	-0.336***	(0.076)	-0.263*	(0.122)	-0.358***	(0.099)	-0.242**	(0.084)	-0.147	(0.101)	-0.348*	(0.142)
Job autonomy	-0.103*	(0.040)	-0.110*	(0.050)	-0.126*	(0.056)	-0.207***	(0.041)	-0.255***	(0.055)	-0.162**	(0.059)
Routine work	0.070***	(0.020)	0.072	(0.045)	0.066**	(0.023)	0.018	(0.020)	0.015	(0.029)	0.023	(0.033)
Psychological stress	0.144***	(0.030)	0.081	(0.050)	0.177***	(0.039)	0.191***	(0.026)	0.183***	(0.034)	0.206***	(0.036)
Physically demanding work	0.110***	(0.033)	0.172***	(0.043)	0.063	(0.043)	0.097***	(0.027)	0.085**	(0.033)	0.118**	(0.044)
Supervisory responsibility	0.164**	(0.054)	0.078	(0.105)	0.224***	(0.055)	0.008	(0.043)	-0.102	(0.066)	0.181*	(0.083)
Hours worked	-0.006	(0.007)	-0.011	(0.009)	-0.000	(0.008)	0.003	(0.003)	0.003	(0.004)	0.002	(0.005)
Works in a team	-0.084	(0.076)	-0.138	(0.102)	-0.027	(0.109)	-0.127	(0.090)	-0.076	(0.103)	-0.215	(0.137)
Occupational change	0.280 ⁺	(0.161)	0.354 ⁺	(0.204)	0.326*	(0.146)	0.050	(0.093)	-0.019	(0.106)	0.165	(0.172)
Improved occupational position	-0.413*	(0.183)	-0.542*	(0.222)	-0.419*	(0.164)	-0.167	(0.120)	-0.102	(0.143)	-0.291	(0.210)
Workplace characteristics												
Share of employees working with Digitalized work/100	0.127	(0.239)	0.638*	(0.281)	-0.515*	(0.213)	-1.880***	(0.497)	-0.789	(0.562)	-3.916**	(1.307)
Employees working with machines	-0.174 ⁺	(0.100)	-0.053	(0.129)	-0.281*	(0.137)	-0.019	(0.026)	0.019	(0.046)	-0.119	(0.093)
Share of competent employees/100	0.282	(0.446)	0.742	(0.548)	-0.499	(0.537)	0.680**	(0.214)	0.356	(0.275)	0.641	(0.478)
Employees having job autonomy	-0.138	(0.217)	-0.222	(0.301)	-0.020	(0.319)	-0.053	(0.080)	-0.066	(0.091)	-0.007	(0.182)
Employees working in routine jobs	-0.095	(0.121)	-0.002	(0.154)	-0.555***	(0.163)	0.237***	(0.067)	0.320***	(0.055)	0.218 ⁺	(0.123)
Employees having psychological stress	-0.004	(0.167)	-0.012	(0.250)	-0.058	(0.162)	0.216**	(0.081)	0.469***	(0.073)	-0.215 ⁺	(0.120)
Employees working in physically demanding jobs	-0.188	(0.145)	-0.338	(0.212)	0.075	(0.176)	0.040	(0.066)	-0.145*	(0.059)	0.447***	(0.108)
Controlled for:												
Demographic char. and personality	Yes		Yes		Yes		Yes		Yes		Yes	
Qualifications	Yes		Yes		Yes		Yes		Yes		Yes	
ISCO-1-digit occupations	Yes		Yes		Yes		Yes		Yes		Yes	
Workplace composition	Yes		Yes		Yes		Yes		Yes		Yes	
Industries	Yes		Yes		Yes		Yes		Yes		Yes	
Constant	1.713	(1.104)	0.851	(1.550)	3.067*	(1.197)	2.054**	(0.785)	1.207	(0.782)	3.631*	(1.511)

Variance (random effects)											
Individuals	−2.797***	(0.652)	−26.122***	(3.611)	−22.831	(35.014)	−26.441	(47.569)	−25.270	(33.179)	−25.361 (31.616)
Workplaces	−0.217***	(0.023)	−0.295***	(0.033)	−0.196***	(0.027)	−0.224***	(0.020)	−0.262***	(0.032)	−0.230*** (0.027)
N employees	1162		508		654		1299		758		540
<i>N workplaces</i>	31		31		31		34		34		34

LEEP-B3 data; dependent variables: supervisory bullying; clustered robust standard errors in parenthesis. Controlled for: demographic characteristics (age, age squared, women, immigrant), personality (extraversion, conscientiousness, neuroticism, compatibility, openness), qualifications (education in years centered at 9 years, tenure in years), ISCO 1-digit occupations), workplace composition (Share of women/100, Share of women squared/1000, Share of immigrants/100, Share of employees with high school/100). + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 7. Robustness checks: Influence of digitalized work and other job characteristics at the individual- and workplace-level on bullying from coworkers (workplace-level random effects regressions).

	<i>Manufacturing</i>						<i>Public administration, education and health</i>					
	All		High school		No high school		All		High school		No high school	
	I		II		III		IV		V		VI	
Job characteristics												
Digitalized work	-0.074	(0.060)	0.051	(0.083)	-0.134	(0.105)	-0.031	(0.107)	-0.108	(0.125)	0.008	(0.240)
Machines operator	0.035*	(0.018)	0.080**	(0.025)	0.005	(0.023)	0.012	(0.018)	0.004	(0.018)	0.035	(0.028)
Competence	-0.301***	(0.086)	-0.043	(0.110)	-0.398***	(0.094)	-0.175*	(0.072)	-0.129	(0.091)	-0.226*	(0.112)
Job autonomy	-0.079*	(0.037)	-0.206**	(0.066)	-0.033	(0.046)	-0.120***	(0.027)	-0.130***	(0.038)	-0.122*	(0.050)
Routine work	0.033	(0.021)	0.032	(0.023)	0.035	(0.029)	0.017	(0.021)	0.026	(0.029)	-0.002	(0.028)
Psychological stress	0.150***	(0.029)	0.100*	(0.046)	0.181***	(0.039)	0.159***	(0.023)	0.156***	(0.032)	0.159***	(0.036)
Physically demanding work	0.090***	(0.025)	0.134***	(0.032)	0.074*	(0.037)	0.050*	(0.022)	0.053+	(0.028)	0.036	(0.040)
Supervisory responsibility	0.047	(0.045)	0.068	(0.076)	0.042	(0.068)	0.016	(0.052)	-0.066	(0.073)	0.096	(0.076)
Hours worked	-0.001	(0.005)	-0.007	(0.007)	0.009	(0.009)	-0.000	(0.003)	-0.001	(0.004)	0.002	(0.005)
Works in a team	0.055	(0.062)	0.107	(0.098)	0.024	(0.089)	-0.131+	(0.074)	-0.108	(0.070)	-0.189	(0.141)
Occupational change	0.184	(0.144)	0.150	(0.149)	0.268+	(0.159)	0.014	(0.090)	0.136	(0.128)	-0.141	(0.098)
Improved occupational position	-0.330*	(0.161)	-0.252	(0.194)	-0.467*	(0.184)	-0.096	(0.091)	-0.150	(0.125)	-0.066	(0.148)
Workplace characteristics												
Share of employees working with Digitalized work/100	0.041	(0.177)	0.063	(0.234)	-0.200	(0.199)	-0.574	(0.710)	-0.150	(1.181)	-2.146**	(0.717)
Employees working with machines	-0.190*	(0.076)	-0.026	(0.117)	-0.269**	(0.082)	0.059	(0.056)	0.172*	(0.071)	-0.107	(0.071)
Share of competent employees/100	0.021	(0.476)	1.089*	(0.528)	-1.033+	(0.553)	0.448	(0.397)	0.547	(0.468)	0.304	(0.509)
Employees having job autonomy	0.213	(0.218)	-0.012	(0.272)	0.343	(0.224)	0.288**	(0.100)	0.122	(0.147)	0.521***	(0.124)
Employees working in routine jobs	0.250+	(0.139)	0.190	(0.148)	0.023	(0.163)	0.086	(0.088)	-0.011	(0.115)	0.224**	(0.081)
Employees having psychological stress	0.015	(0.160)	-0.096	(0.266)	0.016	(0.165)	0.080	(0.092)	-0.055	(0.150)	0.264*	(0.120)
Employees working in physically demanding jobs	-0.408***	(0.111)	-0.131	(0.179)	-0.509***	(0.108)	0.105	(0.067)	-0.079	(0.121)	0.508***	(0.097)
Controlled for:												
Demographic char. and	Yes		Yes		Yes		Yes		Yes		Yes	

personality												
Qualifications	Yes		Yes		Yes		Yes		Yes		Yes	
ISCO–1–digit occupations	Yes		Yes		Yes		Yes		Yes		Yes	
Workplace composition	Yes		Yes		Yes		Yes		Yes		Yes	
Industries	Yes		Yes		Yes		Yes		Yes		Yes	
Constant	2.463*	(1.240)	0.411	(1.822)	4.001**	(1.353)	3.184***	(0.925)	1.554	(1.059)	5.717***	(1.167)
Variance (random effects)												
Individuals	–3.508	(2.646)	–24.697**	(9.152)	–24.285	(38.216)	–26.658	(32.806)	–20.366	(42.314)	–25.469***	(1.569)
Workplaces	–0.293***	(0.027)	–0.376***	(0.043)	–0.279***	(0.035)	–0.352***	(0.020)	–0.421***	(0.025)	–0.322***	(0.034)
N employees	1164		509		655		1298		759		538	
N workplaces	31		31		31		34		34		34	

LEEP–B3 data; dependent variables: supervisory bullying; clustered robust standard errors in parenthesis. Controlled for demographic characteristics (age, age squared, women, immigrant), personality (extraversion, conscientiousness, neuroticism, compatibility, openness), qualifications (education in years centered at 9 years, tenure in years), ISCO 1–digit occupations), workplace composition (Share of women/100, Share of women squared/1000, Share of immigrants/100, Share of employees with high school/100), industry (Ref. cat.: Manufacturing; Trade, hospitality, and transportation; Banking and insurance; Social, private, and public services). + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table S8: Robustness checks: Influence of digitalized work and other job characteristics at the individual- and workplace-level on bullying from supervisors and coworkers (workplace-level random effects regressions) dropping workplaces having no digitalized work and very high levels of it.

	<i>Supervisory bullying</i>						<i>Coworker bullying</i>					
	All		High school		No high school		All		High school		No high school	
	I		II		III		IV		V		VI	
Job characteristics												
Digitalized work	-0.148*	(0.058)	-0.149 ⁺	(0.076)	-0.150 ⁺	(0.084)	-0.080 ⁺	(0.044)	0.016	(0.057)	-0.213**	(0.077)
Machines operator	0.019	(0.012)	0.019	(0.014)	0.019	(0.018)	0.018	(0.011)	0.026*	(0.012)	0.008	(0.019)
Competence	-0.245***	(0.064)	-0.213*	(0.089)	-0.281***	(0.080)	-0.234***	(0.057)	-0.124*	(0.059)	-0.327***	(0.080)
Job autonomy	-0.189***	(0.027)	-0.231***	(0.037)	-0.168***	(0.039)	-0.104***	(0.023)	-0.160***	(0.030)	-0.066*	(0.033)
Routine work	0.049***	(0.014)	0.048*	(0.022)	0.052**	(0.020)	0.023 ⁺	(0.014)	0.022	(0.015)	0.036	(0.022)
Psychological stress	0.137***	(0.020)	0.127***	(0.027)	0.147***	(0.027)	0.101***	(0.018)	0.068**	(0.024)	0.136***	(0.023)
Physically demanding work	0.123***	(0.020)	0.141***	(0.028)	0.107***	(0.028)	0.090***	(0.016)	0.107***	(0.018)	0.081**	(0.025)
Supervisory responsibility	0.092**	(0.035)	0.037	(0.052)	0.167***	(0.050)	0.030	(0.032)	-0.034	(0.048)	0.130**	(0.044)
Hours worked	0.002	(0.003)	0.001	(0.004)	0.003	(0.005)	0.004*	(0.002)	0.006 ⁺	(0.003)	0.002	(0.004)
Works in a team	-0.150**	(0.051)	-0.138*	(0.061)	-0.150 ⁺	(0.079)	-0.016	(0.050)	0.038	(0.055)	-0.054	(0.081)
Occupational change	0.095	(0.093)	0.160	(0.103)	0.030	(0.110)	0.033	(0.079)	0.013	(0.076)	0.108	(0.110)
Improved occupational position	-0.201 ⁺	(0.110)	-0.254 ⁺	(0.135)	-0.137	(0.117)	-0.150 ⁺	(0.088)	-0.085	(0.096)	-0.284*	(0.129)
Workplace characteristics												
Share of employees working with Digitalized work/100	0.518*	(0.204)	0.468 ⁺	(0.249)	0.397	(0.380)	0.119	(0.210)	-0.434*	(0.192)	0.302	(0.323)
Employees working with machines	-0.021	(0.050)	0.037	(0.061)	-0.078	(0.072)	-0.044	(0.057)	0.096 ⁺	(0.057)	-0.165*	(0.080)
Share of competent employees/100	0.516 ⁺	(0.281)	0.573 ⁺	(0.338)	0.497	(0.425)	0.185	(0.323)	0.664*	(0.313)	-0.205	(0.466)
Employees having job autonomy	-0.130	(0.084)	-0.142	(0.106)	-0.192	(0.133)	0.059	(0.075)	0.079	(0.097)	-0.078	(0.114)
Employees working in routine jobs	0.162 ⁺	(0.094)	0.169	(0.110)	0.073	(0.136)	0.118	(0.092)	0.062	(0.097)	0.082	(0.101)
Employees having psychological stress	0.071	(0.093)	0.171	(0.112)	-0.069	(0.145)	0.038	(0.098)	0.038	(0.115)	0.072	(0.137)
Employees working in physically demanding jobs	-0.130	(0.088)	-0.201*	(0.099)	-0.041	(0.142)	-0.065	(0.085)	-0.079	(0.093)	-0.140	(0.131)
Controlled for:												
Demographic char. and personality	Yes		Yes		Yes		Yes		Yes		Yes	
Qualifications	Yes		Yes		Yes		Yes		Yes		Yes	
ISCO-1-digit occupations	Yes		Yes		Yes		Yes		Yes		Yes	
Workplace composition	Yes		Yes		Yes		Yes		Yes		Yes	
Industries	Yes		Yes		Yes		Yes		Yes		Yes	
Constant	0.332	(0.545)	0.275	(0.705)	0.249	(0.834)	1.586**	(0.565)	1.041	(0.705)	2.202**	(0.796)
Variance (random effects)												

Individuals	−3.009***	(0.615)	−22.971	(27.511)	−3.028*	(1.223)	−2.829***	(0.500)	−14.831	(29.893)	−23.786	(36.968)
Workplaces	−0.235***	(0.017)	−0.286***	(0.022)	−0.191***	(0.024)	−0.330***	(0.018)	−0.399***	(0.021)	−0.280***	(0.029)
N employees	2670		1518		1151		2670		1518		1151	
<i>N workplaces</i>	70		70		70		70		70		70	

LEEP-B3 data; dependent variables: supervisory bullying; clustered robust standard errors in parenthesis. Controlled for demographic characteristics (age, age squared, women, immigrant), personality (extraversion, conscientiousness, neuroticism, compatibility, openness), qualifications (education in years centered at 9 years, tenure in years), ISCO 1-digit occupations), workplace composition (Share of women/100, Share of women squared/1000, Share of immigrants/100, Share of employees with high school/100), industry (Ref. cat.: Manufacturing; Trade, hospitality, and transportation; Banking and insurance; Social, private, and public services). + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

public services). + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.