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Shift work and cognitive aging: a longitudinal study ¹

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¹ *Appendix*

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Appendix A.					
	All participants	No shift work history ^a		With shift work history ^a	
	N	n	%	n	%
Participated in at least one IPT wave	595	489	82.2%	106	17.8%
IPT1	441	362	82.1%	79	17.9%
IPT2	426	342	80.3%	84	19.7%
IPT3	401	319	79.6%	82	20.4%
IPT4 ^b	34	29	85.3%	5	14.7%
IPT5	390	315	80.8%	75	19.2%
IPT6	337	276	81.9%	61	18.1%
IPT7	287	234	81.5%	53	18.5%
IPT8	250	202	80.8%	48	19.2%
IPT9	223	183	82.1%	40	17.9%
Abbreviations: IPT, in-person-testing.					
^a Shift work measured once at baseline in 1984.					
^b IPT4 was incomplete due to funding reasons.					

Appendix B. Results from Growth Curve Model estimating association of shift work duration categories with level & change in cognitive performance^a (N=595).

Effect		Verbal		Spatial		Memory		Processing Speed		Global	
		Est.	SE	Est.	SE	Est.	SE	Est.	SE	Est.	SE
	Shift work duration										
Intercept _{RA}	None (Intercept)	51.72***	2.17	64.78***	2.74	51.55***	2.59	60.35***	2.50	58.34***	2.34
	9 yrs or less ^b	1.44	1.48	0.35	1.84	3.94	1.70	-2.54	1.65	1.94	1.59
	9-20 yrs ^b	1.43	1.27	0.70	1.60	-0.07	1.49	-0.80	1.45	0.25	1.58
	20+ yrs ^b	1.05	1.42	-1.19	1.76	-0.81	1.63	-1.54	1.61	-1.15	1.54
Linear Age _{S1}	None (Intercept)	-0.03	0.23	0.84*	0.34	0.66	0.40	0.74*	0.37	0.57*	0.24
	9 yrs or less ^c	0.15	0.14	-0.24	0.20	-0.16	0.22	0.13	0.25	-0.07	0.15
	9-20 yrs ^c	-0.11	0.10	0.01	0.15	-0.16	0.17	-0.23	0.17	-0.08	0.11
	20+ yrs ^c	0.07	0.10	-0.01	0.15	-0.28	0.17	0.20	0.17	-0.20	0.11
Linear Age _{S2}	None (Intercept)	0.69*	0.29	-0.41	0.43	0.22	0.49	-0.37	0.45	0.27	0.31
	9 yrs or less ^d	-0.23	0.17	0.34	0.25	0.24	0.27	0.13	0.28	0.13	0.19
	9-20 yrs ^d	-0.13	0.14	-0.11	0.21	0.38	0.24	0.43	0.21	0.24	0.15
	20+ yrs ^d	-0.06	0.14	-0.05	0.21	0.39	0.24	0.21	0.22	0.19	0.16

Abbreviations: Est., estimate. SE, standard error. Significant codes: *p<0.05, **p<0.01, ***p<0.001.

An asterisk for Intercept_{RA} indicates the value is significantly different from 0.

An asterisk for slope (Linear Age_{S1} or Linear Age_{S2}) indicates the slope is significantly different from 0.

^a All models are adjusted for baseline age, sex, education, and occupational status, but only fixed effects of shift work are presented.

^b Effect of shift work duration group on mean performance level (Intercept_{RA}) at retirement age compared to reference.

^c Effect of shift work duration group on rate of change per year in cognitive performance across the entire measurement period (Linear Age_{S1}) compared to reference.

^d Effect of shift work duration group on additional rate of change per year in cognitive performance after retirement age (Linear Age_{S2}) compared to reference.

Appendix C. Results from Growth Curve Model estimating association of night work with level & change in cognitive performance^a (N=320).

Effect		Verbal		Spatial		Memory		Processing Speed		Global	
		Est.	SE	Est.	SE	Est.	SE	Est.	SE	Est.	SE
	Night work history										
Intercept _{RA}	0=No (Reference)	46.83***	2.71	58.62***	3.69	50.04***	3.32	59.03***	3.25	54.12***	3.14
	1=Yes ^b	0.43	0.14	-2.00	1.55	0.94	1.36	-1.67	1.34	-0.92	1.32
Linear Age _{S1}	0=No (Reference)	0.23	0.30	0.46	0.45	0.30	0.53	0.82	0.48	0.38	0.30
	1=Yes ^c	-0.03	0.08	0.04	0.13	-0.16	0.14	-0.20	0.14	-0.12	0.09
Linear Age _{S2}	0=No (Reference)	0.23	0.35	0.30	0.56	0.78	0.63	-0.42	0.57	0.49	0.38
	1=Yes ^d	-0.02	0.11	0.04	0.18	0.30	0.19	0.24	0.18	0.17	0.13

Abbreviations: Est., estimate. SE, standard error. Significant codes: *p<0.05, **p<0.01, ***p<0.001.

An asterisk for Intercept_{RA} indicates the value is significantly different from 0.

An asterisk for slope (Linear Age_{S1} or Linear Age_{S2}) indicates the slope is significantly different from 0.

^a All models are adjusted for baseline age, sex, education, and occupational status, but only fixed effects of shift work are presented.

^b Effect of night work on mean performance level (Intercept_{RA}) at retirement age compared to reference.

^c Effect of night work on rate of change per year in cognitive performance across the entire measurement period (Linear Age_{S1}) compared to reference.

^d Effect of night work on additional rate of change per year in cognitive performance after retirement age (Linear Age_{S2}) compared to reference.

Appendix D. Results from Growth Curve Model estimating association of night work with level & change in cognitive performance, including shift work*education interaction term^a (N=320)

Effect		Verbal		Spatial		Memory		Processing Speed		Global	
		Est.	SE	Est.	SE	Est.	SE	Est.	SE	Est.	SE
	Night work history										
Intercept _{RA}	0=No (Reference)	47.53***	2.69	58.82***	3.69	50.43***	3.32	59.39***	3.26	54.64***	3.14
	1=Yes ^b	3.01*	1.46	-1.22	1.98	2.58	1.75	-0.29	1.72	1.06	1.72
Linear Age _{S1}	0=No (Reference)	0.24	0.30	0.47	0.45	0.30	0.53	0.83	0.48	-0.38	0.30
	1=Yes ^c	-0.03	0.08	0.03	0.13	-0.17	0.14	-0.22	0.14	-0.13	0.09
Linear Age _{S2}	0=No (Reference)	0.22	0.35	0.30	0.56	0.78	0.63	-0.42	0.57	0.49	0.38
	1=Yes ^d	-0.03	0.11	0.04	0.18	0.29	0.19	0.25	0.18	0.18	0.13
	Education group										
Intercept _{RA}	High vs. Low Education	6.38***	0.91	2.08	1.24	2.87**	1.09	2.74*	1.08	4.56***	1.06
Linear Age _{S1}	High vs. Low Education	0.01	0.06	0.01	0.09	-0.07	0.11	0.02	0.10	0.02	0.06
Linear Age _{S2}	High vs. Low Education	-0.04	0.08	0.04	0.13	0.13	0.15	0.03	0.13	0.001	0.09
	NW*Education										
Intercept _{RA}	NW*High Edu vs. No NW*Low Edu	-6.13**	2.23	-1.80	2.87	-3.76	2.53	-3.19	2.50	-4.66***	2.56

Abbreviations: NW, night work. Est., estimate. SE, standard error. Significant codes: *p<0.05, **p<0.01, ***p<0.001.

An asterisk for Intercept_{RA} indicates the value is significantly different from 0.

An asterisk for slope (Linear Age_{S1} or Linear Age_{S2}) indicates the slope is significantly different from 0.

^a All models are adjusted for baseline age, sex, education, and occupational status, but only fixed effects of shift work are presented.

^b Effect of night work on mean performance level (Intercept_{RA}) at retirement age compared to reference.

^c Effect of night work on rate of change per year in cognitive performance across the entire measurement period (Linear Age_{S1}) compared to reference.

^d Effect of night work on additional rate of change per year in cognitive performance after retirement age (Linear Age_{S2}) compared to reference.