

Supplemental Material

Tables

Table 1. MeSH terms for literature search

("shift"[All Fields] OR "shifted"[All Fields] OR "shifting"[All Fields] OR "shiftings"[All Fields] OR "shifts"[All Fields]) AND ("work"[MeSH Terms] OR "work"[All Fields]) AND ("neurobehavior"[All Fields] OR "neurobehavioral"[All Fields] OR "neurobehaviors"[All Fields] OR "neurobehaviour"[All Fields] OR "neurobehavioural"[All Fields]) AND ("perform"[All Fields] OR "performable"[All Fields] OR "performance"[All Fields] OR "performance s"[All Fields] OR "performances"[All Fields] OR "performative"[All Fields] OR "performatively"[All Fields] OR "performatives"[All Fields] OR "performativities"[All Fields] OR "performativity"[All Fields] OR "performed"[All Fields] OR "performer"[All Fields] OR "performer s"[All Fields] OR "performers"[All Fields] OR "performing"[All Fields] OR "performs"[All Fields]); "long"[All Fields] AND ("work"[MeSH Terms] OR "work"[All Fields]) AND "hours"[All Fields] AND ("neurobehavior"[All Fields] OR "neurobehavioral"[All Fields] OR "neurobehaviors"[All Fields] OR "neurobehaviour"[All Fields] OR "neurobehavioural"[All Fields]) AND ("perform"[All Fields] OR "performable"[All Fields] OR "performance"[All Fields] OR "performance s"[All Fields] OR "performances"[All Fields] OR "performative"[All Fields] OR "performatively"[All Fields] OR "performatives"[All Fields] OR "performativities"[All Fields] OR "performativity"[All Fields] OR "performed"[All Fields] OR "performer"[All Fields] OR "performer s"[All Fields] OR "performers"[All Fields] OR "performing"[All Fields] OR "performs"[All Fields]); ("shift"[All Fields] OR "shifted"[All Fields] OR "shifting"[All Fields] OR "shiftings"[All Fields] OR "shifts"[All Fields]) AND ("work"[MeSH Terms] OR "work"[All Fields]) AND ("attention"[MeSH Terms] OR "attention"[All Fields] OR "attentions"[All Fields] OR "attention s"[All Fields] OR "attentional"[All Fields] OR "attentive"[All Fields] OR "attentively"[All Fields] OR "attentiveness"[All Fields]); ("shift"[All Fields] OR

"shifted"[All Fields] OR "shifting"[All Fields] OR "shiftings"[All Fields] OR "shifts"[All Fields]) AND ("work"[MeSH Terms] OR "work"[All Fields]) AND ("memories"[All Fields] OR "memory"[MeSH Terms] OR "memory"[All Fields] OR "memory s"[All Fields]); ("shift"[All Fields] OR "shifted"[All Fields] OR "shifting"[All Fields] OR "shiftings"[All Fields] OR "shifts"[All Fields]) AND ("work"[MeSH Terms] OR "work"[All Fields]) AND ("motor"[All Fields] OR "motor s"[All Fields] OR "motoric"[All Fields] OR "motorically"[All Fields] OR "motorics"[All Fields] OR "motoring"[All Fields] OR "motorisation"[All Fields] OR "motorised"[All Fields] OR "motorization"[All Fields] OR "motorized"[All Fields] OR "motors"[All Fields]) AND ("speed"[All Fields] OR "speeded"[All Fields] OR "speeding"[All Fields] OR "speeds"[All Fields]); ("shift"[All Fields] OR "shifted"[All Fields] OR "shifting"[All Fields] OR "shiftings"[All Fields] OR "shifts"[All Fields]) AND ("work"[MeSH Terms] OR "work"[All Fields]) AND ("modafinil"[MeSH Terms] OR "modafinil"[All Fields] OR "vigil"[All Fields] OR "vigilances"[All Fields] OR "vigils"[All Fields] OR "wakefulness"[MeSH Terms] OR "wakefulness"[All Fields] OR "vigilance"[All Fields] OR "vigilant"[All Fields]); ("shift"[All Fields] OR "shifted"[All Fields] OR "shifting"[All Fields] OR "shiftings"[All Fields] OR "shifts"[All Fields]) AND ("work"[MeSH Terms] OR "work"[All Fields]) AND ("process"[All Fields] OR "processe"[All Fields] OR "processed"[All Fields] OR "processes"[All Fields] OR "processing"[All Fields] OR "processings"[All Fields]) AND ("speed"[All Fields] OR "speeded"[All Fields] OR "speeding"[All Fields] OR "speeds"[All Fields]); ("shift"[All Fields] OR "shifted"[All Fields] OR "shifting"[All Fields] OR "shiftings"[All Fields] OR "shifts"[All Fields]) AND ("work"[MeSH Terms] OR "work"[All Fields]) AND ("cognition"[MeSH Terms] OR "cognition"[All Fields] OR "cognitions"[All Fields] OR "cognitive"[All Fields] OR "cognitively"[All Fields] OR "cognitives"[All Fields]) AND ("perform"[All Fields] OR "performable"[All Fields] OR "performance"[All Fields])

Fields] OR "performance s"[All Fields] OR "performances"[All Fields] OR "performative"[All Fields] OR "performatively"[All Fields] OR "performatives"[All Fields] OR "performativities"[All Fields] OR "performativity"[All Fields] OR "performed"[All Fields] OR "performer"[All Fields] OR "performer s"[All Fields] OR "performers"[All Fields] OR "performing"[All Fields] OR "performs"[All Fields]); ("shift"[All Fields] OR "shifted"[All Fields] OR "shifting"[All Fields] OR "shiftings"[All Fields] OR "shifts"[All Fields]) AND ("work"[MeSH Terms] OR "work"[All Fields]) AND ("cognition"[MeSH Terms] OR "cognition"[All Fields] OR ("cognitive"[All Fields] AND "function"[All Fields]) OR "cognitive function"[All Fields]); ("shift"[All Fields] OR "shifted"[All Fields] OR "shifting"[All Fields] OR "shiftings"[All Fields] OR "shifts"[All Fields]) AND ("work"[MeSH Terms] OR "work"[All Fields]) AND ("cognition"[MeSH Terms] OR "cognition"[All Fields] OR "cognitions"[All Fields] OR "cognitive"[All Fields] OR "cognitively"[All Fields] OR "cognitives"[All Fields]).

Table 2 Raw Data for Meta-Analysis

<i>Study</i>	<i>Outcome</i>	<i>g</i>	<i>se</i>	<i>Control group</i>	<i>Exposure group</i>	<i>Shift work Experience</i>
(Ansiu et al., 2008)	Processing Speed	0.03	0.07	2079	258	N.A.
(Behrens et al., 2019)	Psychomotor Vigilance	0.31	0.22	71	71	N.A.
(Burch et al., 2018)	Psychomotor Vigilance	0.24	0.49	7	11	≥ 1 month
(Cori et al., 2017)	Visual Attention	-0.01	0.25	39	37	≥ 3 months
(Cori et al., 2017)	Working Memory	0.07	0.25	39	37	≥ 3 months
(Cori et al., 2017)	Psychomotor Vigilance	-0.21	0.23	39	37	≥ 3 months
(Cori et al., 2017)	Cognitive Control	0.00	0.25	39	37	≥ 3 months
(Cori et al., 2017)	Task Switching	-0.14	0.25	39	37	≥ 3 months
(Dönmezgil et al., 2020)	Cognitive Control	0.72	0.25	31	41	5.90
(Flynn-Evans et al, 2018)	Psychomotor Vigilance	0.34	0.23	38	40	N.A.
(Flynn-Evans et al, 2018)	Psychomotor Vigilance	0.52	0.23	38	40	N.A.
(Flynn-Evans et al, 2018)	Psychomotor Vigilance	0.45	0.23	38	40	N.A.
(Ganesan et al., 2019)	Psychomotor Vigilance	0.75	0.29	25	25	9.50
(Geiger-Brown et al., 2012)	Psychomotor Vigilance	0.23	0.22	39	41	10.00
(Hong et al., 2020)	Visual Attention	0.22	0.15	57	221	20.24
(Hong et al., 2020)	Psychomotor Vigilance	-0.14	0.15	57	221	20.24
(Hong et al., 2020)	Task Switching	0.31	0.15	57	221	20.24
(Hong et al., 2020)	Cognitive Control	0.24	0.15	57	221	20.24
(Özdemir et al., 2013)	Working Memory	0.41	0.21	45	45	≥ 1 month
(Özdemir et al., 2013)	Cognitive Control	0.38	0.21	45	45	≥ 1 month
(Persico et al., 2018)	Processing Speed	0.22	0.22	40	40	7.60
(Persico et al., 2018)	Working Memory	0.07	0.22	40	40	7.60
(Persico et al., 2018)	Processing Speed	0.40	0.23	40	40	7.60
(Persico et al., 2018)	Working Memory	0.50	0.23	40	40	7.60
(Reinke et al., 2015)	Psychomotor Vigilance	0.10	0.31	21	21	N.A.
(Rouch et al., 2005)	Processing Speed	0.00	0.06	1049	265	N.A.
(Rouch et al., 2005)	Processing Speed	0.02	0.07	1014	321	N.A.
(Sudhakar & Shweta, 2012)	Cognitive Control	1.17	0.22	50	50	≥ 6 months
(Shweta & Sudhakar, 2013)	Processing Speed	0.54	0.20	50	50	≥ 6 months
(Shweta & Sudhakar, 2013)	Cognitive Control	1.01	0.21	50	50	≥ 6 months
(Shweta, 2011)	Cognitive Control	1.17	0.22	50	50	≥ 6 months
(Shweta, 2011)	Cognitive Control	1.01	0.21	50	50	≥ 6 months
(Shweta, 2011)	Processing Speed	0.24	0.20	50	50	≥ 6 months
(Shweta, 2011)	Processing Speed	0.54	0.20	50	50	≥ 6 months
(Titova et al., 2016)	Task Switching	0.28	0.04	4611	643	N.A.

(Titova et al., 2016)	Visual Attention	0.19	0.04	4611	643	N.A.
(Vajravelu et al., 2016)	Cognitive Control	2.12	0.28	40	40	≥ 6 months

Table 3 Characteristics of included studies

<i>Study</i>	<i>Study Design</i>	<i>Neurobehavioral Test</i>	<i>Shift Type</i>	<i>Occupation</i>	<i>Study Quality</i>
(Ansiu et al., 2008)	Cross-sectional	Coding	Fixed	Diverse	Fair
(Behrens et al., 2019)	Cross-sectional	Psychomotor Vigilance Task	Rotating	Health care	Good
(Burch et al., 2018)	Cross-sectional	Psychomotor Vigilance Task	Fixed	Health care	Good
(Cori et al., 2017)	Cross-sectional	Trail Making Test A	Rotating	Diverse	Fair
(Cori et al., 2017)	Cross-sectional	Digit Span	Rotating	Diverse	Fair
(Cori et al., 2017)	Cross-sectional	Psychomotor Vigilance Task	Rotating	Diverse	Fair
(Cori et al., 2017)	Cross-sectional	Stroop Test	Rotating	Diverse	Fair
(Cori et al., 2017)	Cross-sectional	Trail Making Test B	Rotating	Diverse	Fair
(Dönmezdil et al., 2020)	Cross-sectional	Digit Span	Fixed	Diverse	Fair
(Flynn-Evans et al, 2018)	Cross-sectional	Psychomotor Vigilance Task	Rotating	Pilots	Fair
(Flynn-Evans et al, 2018)	Cross-sectional	Psychomotor Vigilance Task	Rotating	Pilots	Fair
(Flynn-Evans et al, 2018)	Cross-sectional	Psychomotor Vigilance Task	Rotating	Pilots	Fair
(Ganesan et al., 2019)	Cross-sectional	Psychomotor Vigilance Task	Rotating	Health care	Fair
(Geiger-Brown et al., 2012)	Cross-sectional	Psychomotor Vigilance Task	Fixed	Health care	Fair
(Hong et al., 2020)	Cross-sectional	Trail Making Test A	Rotating	Police	Good
(Hong et al., 2020)	Cross-sectional	Psychomotor Vigilance Task	Rotating	Police	Good
(Hong et al., 2020)	Cross-sectional	Trail Making Test B	Rotating	Police	Good
(Hong et al., 2020)	Cross-sectional	Stroop Test	Rotating	Police	Good
(Özdemir et al., 2013)	Cross-sectional	Digit Span	Rotating	Health care	Fair
(Özdemir et al., 2013)	Cross-sectional	Stroop Test	Rotating	Health care	Fair
(Persico et al., 2018)	Cross-sectional	Coding	Rotating	Health care	Fair
(Persico et al., 2018)	Cross-sectional	Digit Span	Rotating	Health care	Fair
(Persico et al., 2018)	Cross-sectional	Coding	Rotating	Health care	Fair
(Persico et al., 2018)	Cross-sectional	Digit Span	Rotating	Health care	Fair
(Reinke et al., 2015)	Cross-sectional	Psychomotor Vigilance Task	Fixed	Health care	Fair
(Rouch et al., 2005)	Cross-sectional	Coding	Fixed	Diverse	Fair
(Rouch et al., 2005)	Cross-sectional	Coding	Fixed	Diverse	Fair
(Sudhakar & Shweta, 2012)	Cross-sectional	Stroop Test	Rotating	Diverse	Fair
(Shweta & Sudhakar, 2013)	Cross-sectional	Coding	Rotating	Diverse	Fair
(Shweta & Sudhakar, 2013)	Cross-sectional	Stroop Test	Rotating	Diverse	Fair
(Shweta, 2011)	Cross-sectional	Stroop Test	Rotating	Diverse	Fair
(Shweta, 2011)	Cross-sectional	Stroop Test	Rotating	Diverse	Fair

(Shweta, 2011)	Cross-sectional	Coding	Rotating	Diverse	Fair
(Shweta, 2011)	Cross-sectional	Coding	Rotating	Diverse	Fair
(Titova et al., 2016)	Cross-sectional	Trail Making Test B	Fixed	Diverse	Fair
(Titova et al., 2016)	Cross-sectional	Trail Making Test A	Fixed	Diverse	Fair
(Vajravelu et al., 2016)	Cross-sectional	Stroop Test	Rotating	Security	Fair
