Supplementary Table 1. NSF Criteria for Categorising Sleep Parameters as 'Appropriate', 'May be appropriate' and 'Suboptimal', According to Age.

Sleep parameter	Age	Appropriate	May be appropriate	Suboptimal
Sleep duration (hours)	18-25	7-9	6, 10-11	< 6, >11
	26-64	7-9	6, 10	< 6, >10
	65+	7-8	5-6, 9	<5, >9
Sleep onset latency (minutes)	18-25	≤30	>30 ≤45	>45
	26-64	≤30	>30 ≤45	>45
	65+	≤30	>30 ≤60	> 60
Awakenings (>5min)	18-25	≤1	>1 ≤3	>3
	26-64	≤1	>1 ≤3	>3
	65+	≤2	>2 ≤3	>3
Wake after sleep onset (minutes)	18-25	≤20	>20 ≤40	>40
	26-64	≤20	>20 ≤40	>40
	65+	≤30	>30	N/A
Sleep efficiency (%)	18-25	≥85	<85 ≥65	<65
	26-64	≥85	<85 ≥75	<75
	65+	≥85	<85 ≥75	<75
Naps per day (n)	18-25	0	1-2	>2
	26-64	N/A	0-3	>3
	65+	N/A	0-3	>3
Nap duration (minutes)	18-25	N/A	0-100	>100
	26-64	N/A	0-100	>100
	65+	N/A	0-100	>100
Nap frequency (days)	18-25	0	≥1	N/A
	26-64	N/A	N/A	N/A
	65+	N/A	N/A	N/A

N/A: not applicable, no 'suboptimal' criteria.

Supplementary Table 2. Variations in Associations between Suboptimal Sleep and SNAP risks According to Mental Health Status

Mental Health Status	SNAP risk	OR	95 % CI Lower	Upper	
	Sleep Duration (Weekdays)[1]				
MHC[2]	Smoking risk	2.10	0.80	5.48	
	No smoking risk	2.33	1.22	4.44	
MHC[2]	Nutrition risk	2.33	1.22	4.44	
	No nutrition risk	1.89	0.54	6.62	
MHC[2]	Alcohol risk	3.06	1.41	6.64	*
	No alcohol risk	1.60	0.73	3.49	
MHC[2]	PA risk	1.89	0.54	6.62	
	No PA risk	1.89	0.54	6.62	
	Sleep Duration (Weekends)[1]				
MHC[2]	Smoking risk	1.87	0.71	4.90	
	No smoking risk	2.62	1.37	5.03	
MHC[2]	Nutrition risk	2.49	1.61	3.84	
	No nutrition risk	1.97	0.56	6.97	
MHC[2]	Alcohol risk	3.06	1.41	6.69	*
	No alcohol risk	1.60	0.73	3.52	
MHC[2]	PA risk	2.20	1.01	4.80	
	No PA risk	2.23	1.02	4.88	
	Sleep Onset Latency [1]				
MHC[2]	Smoking risk	3.37	1.01	11.24	
	No smoking risk	1.85	0.75	4.56	
MHC[2]	Nutrition risk	2.79	1.72	4.54	
	No nutrition risk	2.24	0.39	12.95	
MHC[2]	Alcohol risk	1.87	0.65	5.34	
	No alcohol risk	3.34	1.21	9.20	
MHC[2]	PA risk	2.27	0.80	6.46	
	No PA risk	2.75	1.01	7.45	
	Awakenings[1]				
MHC[2]	Smoking risk	4.12	1.31	12.93	
	No smoking risk	3.17	1.48	6.80	
MHC[2]	Nutrition risk	2.44	1.41	4.21	
	No nutrition risk	5.37	1.27	22.66	
MHC[2]	Alcohol risk	3.13	1.23	7.97	
	No alcohol risk	4.17	1.66	10.49	
MHC[2]	PA risk	3.42	1.36	8.66	
	No PA risk	3.82	1.52	9.54	

	Wake After Sleep Onset[1]				
MHC[2]	Smoking risk	5.07	1.12	22.95	
	No smoking risk	2.58	0.93	7.18	
MHC[2]	Nutrition risk	2.04	1.04	4.02	
	No nutrition risk	6.41	0.88	46.55	
MHC[2]	Alcohol risk	2.58	0.75	8.82	
	No alcohol risk	5.08	1.49	17.25	
MHC[2]	PA risk	3.14	0.93	10.61	
	No PA risk	4.16	1.23	14.05	
	Sleep Efficiency[1]				
MHC[2]	Smoking risk	3.26	0.60	17.66	
	No smoking risk	1.86	0.55	6.22	
MHC[2]	Nutrition risk	2.83	1.38	5.79	
	No nutrition risk	2.14	0.20	22.84	
MHC[2]	Alcohol risk	1.98	0.49	8.04	
	No alcohol risk	3.06	0.74	12.63	
MHC[2]	PA risk	3.38	0.86	13.28	
	No PA risk	1.79	0.42	7.59	
	Nap Duration[1]				
MHC[2]	Smoking risk	2.64	0.51	13.65	
	No smoking risk	2.69	0.70	10.36	
MHC[2]	Nutrition risk	2.25	1.01	5.02	
	No nutrition risk	3.16	0.27	37.14	
MHC[2]	Alcohol risk	4.70	1.06	20.93	
	No alcohol risk	1.51	0.34	6.68	
MHC[2]	PA risk	7.96	1.90	33.22	*
	No PA risk	0.89	0.17	4.57	

MHC: People with a mental health condition; PA: Physical activity

[1] Reference category: Appropriate/may be appropriate; [2] Reference category: No mental health condition

*Parameter estimate for interaction term significant at 0.05