Supplementary Materials

Table S1: Summary of studies, epidemiological sample characteristics, and results as originally reported in the articles included in the systematic review in the "*Clinical population group"*. Quality assessment was performed according to the study design.

Study	Country	Design	Sample Population (n; Sex; Age; Job; Diagnosis)	QoL Questionnaire	QoL Outcome	Biomarker (Biological Matrix)	Analytical Method	Bio-molecular Outcome	Quality Assessment
Devoto et al., 2017	US	Cross-sectional	♂ 63; Age (Mean ± SD) = 32.2 ± 9.0 yrs.; Active duty military personnel; Traumatic Brain Injury	SF-36 (0-100) Bodily pain Emotional well-being Energy/Fatigue General health Physical functioning Social functioning Role limits – Emotional Role limits – Physical	Mean ± SD 50.5 ± 25.6 52.6 ± 19.5 25.6 ± 16.9 49.1 ± 18.1 67.9 ± 23.7 51.5 ± 24.8 45.6 ± 43.6 31.7 ± 38.4	Blood (59 subjects) TNF-α [pg/mL] IL-6 [pg/mL] IL-10 [pg/mL]	 SimoaTM SimoaTM SimoaTM	Mean ± SD 3.10 ± 1.30 3.01 ± 2.10 Median (IQR) 0.58 (0.72)	High
Gill et al., 2014 (†)	US	Cross-sectional	♂ 68 ♀ 2; Age (Mean ± SD) = 34.2 ± 7.0 yrs.; Active duty military personnel; PTSD, Depression, Traumatic Brain Injury († Low comorbid group)	SF-36 (0-100) Bodily pain Emotional well-being Energy/Fatigue General health Physical functioning Social functioning Role limits – Physical Role limits – Emotional	Mean ± SD 67.5 ± 22.0 69.0 ± 17.2 41.4 ± 18.8 66.9 ± 17.4 82.8 ± 20.1 75.7 ± 21.2 75.1 ± 35.5 82.1 ± 33.2	Blood IL-6 [pg/mL] CRP [pg/mL]	 Radioimmunoassay Radioimmunoassay	Mean ± SD 1.32 ± 0.67 26.06 ± 25.87	High
(‡)			♂ 39 ♀ 1; Age (Mean ± SD) = 32.7 ± 9.7 yrs.; Active duty military personnel; PTSD, Depression, Traumatic Brain Injury (‡ High comorbid group)	Bodily pain Emotional well-being Energy/Fatigue General health Physical functioning Social functioning Role limits – Emotional Role limits – Physical	43.0 ± 23.1 42.0 ± 15.1 19.2 ± 11.3 43.1 ± 17.7 63.3 ± 23.8 42.7 ± 21.5 23.5 ± 33.0 17.4 ± 30.6	IL-6 [pg/mL] CRP [pg/mL]	Radioimmunoassay Radioimmunoassay	1.73 ± 0.62 33.12 ± 23.76	
Heinzelmann et al., 2014 (†)	US	Before-after	♂ 34; Age (Mean ± SD) = 33.2 ± 7.2 yrs.; Military personnel;	RAND-36 (0-100) T0 – Bodily pain T0 – Emotional well-being T0 – Energy/fatigue	Mean ± SD 58.31 ± 29.63 54.00 ± 25.48 30.15 ± 23.60	Blood IL-6 [pg/mL] CRP [pg/mL]	 Radioimmunoassay Radioimmunoassay	Mean (SE) 1.37 (0.14) 35.12 (3.69)	Moderate

			Insomnia, Depression, PTSD († Restorative sleep)	T0 – General health	53.82 ± 21.95				
				T0 – Physical functioning	72.35 ± 24.78				
				T0 – Social functioning	58.26 ± 28.96				
				T0 – Role limits – Physical	50.00 ± 44.81				
				T0 – Role limits – Emotional	53.91 ± 45.73				
				T1 – Bodily pain	58.99 ± 27.58	IL-6 [pg/mL]	Radioimmunoassay	1.20 (0.11)	
				T1 – Emotional well-being	62.12 ± 20.66	CRP [pg/mL]	Radioimmunoassay	21.64 (2.04)	
				T1 – Energy/fatigue	44.85 ± 25.00				
				T1 – General health	56.32 ± 22.57				
				T1 – Physical functioning	75.44 ± 25.65				
				T1 – Social functioning	63.72 ± 31.13				
				T1 – Role limits – Physical	52.21 ± 44.96				
				T1 – Role limits – Emotional	61.79 ± 44.31				
(‡)			♂ 30 ♀ 2; Age (Mean ± SD) = 36.5 ± 8.6 yrs.; Military personnel; Insomnia, Depression, PTSD (‡ No change)	T0 – Bodily pain	48.31 ± 20.65	IL-6 [pg/mL]	Radioimmunoassay	1.36 (0.16)	
				T0 – Emotional well-being	56.63 ± 19.86	CRP [pg/mL]	Radioimmunoassay	31.41 (4.28)	
				T0 – Energy/fatigue	33.75 ± 18.58				
				T0 – General health	51.56 ± 17.62				
				T0 – Physical functioning	69.84 ± 18.99				
				T0 – Social functioning	57.66 ± 25.31				
				T0 – Role limits – Physical	36.88 ± 44.32				
				T0 – Role limits – Emotional	52.06 ± 44.79				
				T1 – Bodily pain	46.02 ± 24.97	IL-6 [pg/mL]	Radioimmunoassay	1.52 (0.25)	
				T1 – Emotional well-being	56.13 ± 24.73	CRP [pg/mL]	Radioimmunoassay	33.16 (4.96)	
				T1 – Energy/fatigue	30.00 ± 19.43				
				T1 – General health	47.50 ± 19.01				
				T1 – Physical functioning	65.31 ± 24.72				
				T1 – Social functioning	54.02 ± 25.51				
				T1 – Role limits – Physical	35.16 ± 35.84				
				T1 – Role limits – Emotional	43.75 ± 44.38				
Kanefsky et al., 2019 (†)	US	Cross-sectional	♂ 36; Age (Mean ± SD) = 33.1 ± 9.1 yrs.; Active duty military personnel; Traumatic Brain Injury († without Loss of Consciousness)	SF-36 (0-100)	Mean ± SD	Blood		Mean ± SD	Moderate
				n.a.	n.a.	IL-6 [pg/mL]	SimoaTM	n.a.	
						IL-10 [pg/mL]	SimoaTM	n.a.	
						TNF-α [pg/mL]	SimoaTM	n.a.	
(‡)			♂ 25; Age (Mean ± SD) = 33.0 ± 9.2 yrs.; Active duty military personnel;	n.a.	n.a.	IL-6 [pg/mL]	SimoaTM	n.a.	
						IL-10 [pg/mL]	SimoaTM	n.a.	
						TNF-α [pg/mL]	SimoaTM	n.a.	

			Traumatic Brain Injury (‡ with Loss of Consciousness)						
Knuth et al., 2016	BR	Cross-sectional	♂ 14 ♀ 117; Adult (>18 yrs.); Community Health Agents; Depression	WHOQOL-Bref (0-100) Physical domain Psychological domain Social relationship Environmental domain	Mean ± SD 63.98 ± 5.31 64.28 ± 14.95 68.96 ± 16.98 50.38 ± 14.17	Saliva Cortisol [mg/dl]	ELISA	Mean ± SD 1.37 ± 0.28	Moderate
Nieuwenhuijsen et al., 2017 (†)	NL	RCT	♂ 8 ♀ 20; Age (Mean ± SD) = 43 ± 8.0 yrs.; Professionally active adults; Neurasthenia (†Intervention group)	SF-36 (0-100) T0 – Energy/Fatigue T0 – Social functioning T0 – Role limits – Emotional T1* – Energy/Fatigue T1* – Social functioning T1* – Role limits – Emotional	Mean ± SD 31.7 ± 18.82 44.6 ± 30.39 21.1 ± 28.34 52.7 ± 21.32 68.8 ± 22.69 64.3 ± 32.62	Hair Cortisol [pg/mg] Cortisol [pg/mg]	n.a. n.a.	Mean ± SD 32.2 (38.48) 39.1 (44.38)	Moderate
(‡)			♂ 9 ♀ 19; Age (Mean ± SD) = 47 ± 9.7 yrs.; Professionally active adults; Neurasthenia (‡ Placebo group)	T0 – Energy/Fatigue T0 – Social functioning T0 – Role limits – Emotional T1* – Energy/Fatigue T1* – Social functioning T1* – Role limits – Emotional	29.2 ± 17.80 44.4 ± 23.90 22.6 ± 27.74 63.2 ± 16.40 74.1 ± 20.67 67.9 ± 33.31	Cortisol [pg/mg] Cortisol [pg/mg]	n.a. n.a.	38.8 (85.58) 30.1 (26.71)	
(¥)			♂ 10 ♀ 18; Age (Mean ± SD) = 40 ± 8.9 yrs.; Professionally active adults; Neurasthenia (¥ Control group)	T0 – Energy/Fatigue T0 – Social functioning T0 – Role limits – Emotional T1* – Energy/Fatigue T1* – Social functioning T1* – Role limits – Emotional	27.8 ± 13.50 41.7 ± 22.10 17.8 ± 17.78 52.1 ± 18.88 66.5 ± 23.20 58.3 ± 39.15	Cortisol [pg/mg] Cortisol [pg/mg]	n.a. n.a.	20.5 (15.44) 30.0 (19.36)	
Sandstrom et al., 2011	SE		♀ 20; Age (Mean) = 39.3 yrs. (min – max) = 26 – 53 yrs.; Workers with work-related exhaustion Burnout	WHOQOL-Bref (0-100) Psychological domain Environmental domain	Mean ± SD 41.5 ± 11.8 60 ± 9.9	Urine (Cortisol), Saliva (Cortisol), Blood (IL-1β, TNF-α, IL-1 RA, IL-6) Cortisol [nmol/L] Cortisol [nmol/L] IL-1β [pg/ml] TNF-α [pg/ml] IL-1 RA [pg/ml] IL-6 [pg/ml]	 Spectral Cortisol RIA Immulite 2000 ELISA ELISA ELISA ELISA	Mean ± SD -- -- 0.24 ± 0.33 -- -- --	High
Schaffler et al., 2013	D	RCT	♂ 62 ♀ 82; Age (Mean ± SD) = 41.2 ± 5.9 yrs.;	WHO-5	Mean ± SD	Saliva (Cortisol)		Mean ± SD	Moderate

	Professionally active adults; Asthenia/Fatigue					
(†)	♂ 18 ♀ 30; Age (Mean) = 41.9 yrs.; († Stress management Training)	T0	10.5 ± 5.0	Awakening response [1] [nmol/l]	n.a.	6.1 ± 6.7
				Awakening profile – Sum [2] [nmol/l]	n.a.	768 ± 236
				Diurnal time profile [3] [nmol/l]	n.a.	-4.1 ± 5.4
				Diurnal sum [4] [nmol/l]	n.a.	70.1 ± 24.8
		T1	14.6 ± 4.5	Awakening response [1] [nmol/l]	n.a.	5.7 ± 6.3
				Awakening profile – Sum [2] [nmol/l]	n.a.	778 ± 311
				Diurnal time profile [3] [nmol/l]	n.a.	-4.6 ± 5.8
				Diurnal sum [4] [nmol/l]	n.a.	69.7 ± 24.4
(‡)	♂ 22 ♀ 25; Age (Mean) = 41.7 yrs.; (‡ Combination of both treatment)	T0	9.4 ± 4.4	Awakening response [1] [nmol/l]	n.a.	5.0 ± 7.9
				Awakening profile – Sum [2] [nmol/l]	n.a.	853 ± 310
				Diurnal time profile [3] [nmol/l]	n.a.	-5.9 ± 6.5
				Diurnal sum [4] [nmol/l]	n.a.	74.4 ± 32.2
		T1	15.9 ± 4.4	Awakening response [1] [nmol/l]	n.a.	5.1 ± 7.6
				Awakening profile – Sum [2] [nmol/l]	n.a.	800 ± 272
				Diurnal time profile [3] [nmol/l]	n.a.	-5.3 ± 4.9
				Diurnal sum [4] [nmol/l]	n.a.	74.6 ± 27.0
(¥)	♂ 22 ♀ 27; Age (Mean) = 40.0 yrs.; (¥ Eleutherococcus senticosus root extract)	T0	8.4 ± 4.3	Awakening response [1] [nmol/l]	n.a.	7.5 ± 7.1
				Awakening profile – Sum [2] [nmol/l]	n.a.	878 ± 256
				Diurnal time profile [3] [nmol/l]	n.a.	-4.8 ± 5.4
				Diurnal sum [4] [nmol/l]	n.a.	78.5 ± 38.2
		T1	12.5 ± 5.8	Awakening response [1] [nmol/l]	n.a.	6.6 ± 7.2
				Awakening profile – Sum [2] [nmol/l]	n.a.	846 ± 322
				Diurnal time profile [3] [nmol/l]	n.a.	-4.0 ± 5.9
				Diurnal sum [4] [nmol/l]	n.a.	77.1 ± 40.1

Nieuwenhuijsen et al., 2017: *T1** indicate follow-up measurements, defined as T2 in the original manuscript.

Schaffer et al., 2013: [1] difference between awakening measure and awakening + 30 min; [2]sum of awakening, awakening + 30 min and awakening + 45 min measurements; [3]differences between 3 p.m. and 9 a.m. measurements; [4]sum of 9 a.m., 3 p.m., and 9 p.m.

TNF-α = Tumor Necrosis Factor alpha; IL = Interleukin; CRP = C Reactive Protein; IL-1Ra = Interleukin 1 Receptor Antagonist.

Table S2: Summary of studies, epidemiological sample characteristics, and results as originally reported in the articles included in the systematic review in the "*Non-clinical population group*". Quality assessment was performed according to the study design.

Study	Country	Design	Sample Population (n; Sex; Age; Job)	QoL Questionnaire	QoL Outcome	Biomarker (Biological Matrix)	Analytical Method	Bio-molecular Outcome	Quality Assessment
Devoto et al., 2017	US	Cross-sectional	♂ 19 ♀ 1; Age (Mean ± SD) = 31.6 ± 8.0 yrs.; Active-duty personnel	SF-36 (0-100)	Mean ± SD	Blood (59 subjects)		Mean ± SD	High
				Bodily pain	63.4 ± 22.1	TNF-α [pg/ml]	SimoaTM	2.22 ± 0.65	
				Emotional well-being	71.7 ± 20.1	IL-6 [pg/ml]	SimoaTM	1.62 ± 0.56	
				Energy/Fatigue	38.3 ± 18.6			Median (IQR)	
				General health	67.2 ± 22.0	IL-10 [pg/ml]	SimoaTM	0.56 ± 0.44	
				Physical functioning	77.3 ± 26.2				
				Social functioning	71.6 ± 21.7				
				Role limits – Emotional	70.3 ± 41.1				
				Role limits – Physical	56.9 ± 41.8				
Ebata et al., 2019 (†)	J	Cross-sectional	♀ 63; Age (Mean ± SD) = 39.2 ± 10.7 yrs.; Public employees, Nurses, Office workers († Day-workers)	SF-8	Mean ± SD	Blood		Mean ± SD	Moderate
				Physical Component Summary	46.8 ± 7.2	d-ROM [CARR U]	FREE Carrio Duo	341.5 ± 44.9	
				Mental Component Summary	45.6 ± 8.2	BAP [umol/l]	FREE Carrio Duo	2102.2 ± 260.1	
				Visual Analog Scale	Mean ± SD	d-ROM/BAP		0.165 ± 0.03	
				Visual Analog Scale	61.7 ± 19.1				
(‡)			♀ 55; Age (Mean ± SD) = 36.3 ± 11.1 yrs.; Public employees, Nurses, Office workers (‡ Shift-workers)	Physical Component Summary	46.8 ± 7.9	d-ROM [CARR U]	FREE Carrio Duo	335.4 ± 54.8	
				Mental Component Summary	45.6 ± 9.1	BAP [umol/l]	FREE Carrio Duo	2357 ± 390.4	
				Visual Analog Scale	66.4 ± 17.7	d-ROM/BAP		0.15 ± 0.03	
Everding et al., 2016 (†)	US	Cross-sectional	132; Age (Mean ± SD) = 42.7 ± 9.2 yrs.; Sworn officers († Good Sleep Quality)	Unhealthy Days (0-30)	Mean ± SD	Blood (45 subjects)		Mean ± SD	High
				Unhealthy Days	1.5 ± 3.6	IL-6 [pg/ml]	Milliplex MAP	6.3 ± 4.2	
						IL-10 [pg/ml]	Milliplex MAP	77.8 ± 45.8	
						TNF-α [pg/ml]	Milliplex MAP	23.7 ± 14.0	
						IL-1β [pg/ml]	Milliplex MAP	7.9 ± 5.8	
						IL-4 [pg/ml]	Milliplex MAP	50.1 ± 26.7	
						IL-8 [pg/ml]	Milliplex MAP	7.3 ± 5.2	
						TGF-α [pg/ml]	Milliplex MAP	6.2 ± 20.6	
						TNF-β [pg/ml]	Milliplex MAP	46.6 ± 86.7	
(‡)			103;	Unhealthy Days	3.2 ± 6.2	(42 subjects)			
						IL-6 [pg/ml]	Milliplex MAP	n.a.	

			Age (Mean ± SD) = 41.6 ± 8.1 yrs.; Sworn officers (‡ Borderline Sleep Quality)			IL-10 [pg/ml]	Milliplex MAP	n.a.	
						TNF-α [pg/ml]	Milliplex MAP	n.a.	
						IL-1β [pg/ml]	Milliplex MAP	n.a.	
						IL-4 [pg/ml]	Milliplex MAP	n.a.	
						IL-8 [pg/ml]	Milliplex MAP	n.a.	
						TGF-α [pg/ml]	Milliplex MAP	6.6 ± 18.7	
						TNF-β [pg/ml]	Milliplex MAP	33.6 ± 67.3	
(¥)			144; Age (Mean ± SD) = 40.4 ± 8.4 yrs.; Sworn officers (¥ Poor Sleep Quality)	Unhealthy Days	5.4 ± 8.0	(51 subjects)			
						IL-6 [pg/ml]	Milliplex MAP	6.1 ± 6.3	
						IL-10 [pg/ml]	Milliplex MAP	91.2 ± 51.8	
						TNF-α [pg/ml]	Milliplex MAP	21.6 ± 13.7	
						IL-1β [pg/ml]	Milliplex MAP	9.5 ± 6.5	
						IL-4 [pg/ml]	Milliplex MAP	100.1 ± 39.6	
						IL-8 [pg/ml]	Milliplex MAP	8.7 ± 7.5	
						TGF-α [pg/ml]	Milliplex MAP	7.8 ± 18.3	
						TNF-β [pg/ml]	Milliplex MAP	75.2 ± 132.8	
Feicht et al., 2013 (†)	D	RCT	♂ 13 ♀ 41; Age (Mean ± SD) = 37.61 ± 7.72 yrs.; Insurance company employees († Intervention group)	WHO-5 (54 subjects)	Mean ± SD	Saliva (Cortisol) (18 subjects)		Mean ± SD	Moderate
				T0	13.09 ± 4.17	T0 – Cortisol - Awakening response [1] [nmol/L]	n.a.	7.48 ± 10.68	
				T1	15.15 ± 3.90	T0 – Cortisol - Morning activity [2] [nmol/L]	n.a.	31.47 ± 9.65	
				T2	15.04 ± 4.32	T0 – Cortisol - Evening activity [3] [nmol/L]	n.a.	2.67 ± 1.84	
						T0 – Cortisol - Circadian rhythm [4] [nmol/L]	n.a.	28.79 ± 9.60	
						T0 – Cortisol - Awakening (raw) [nmol/L]	n.a.	27.73 ± 7.79	
						T0 – Cortisol - Awakening + 30 min (raw) [nmol/L]	n.a.	35.21 ± 13.52	
						T0 – α-amylase - Awakening response [1] [nmol/L]	n.a.	7.18 ± 28.04	
						T0 – α-amylase - Morning activity [2] [nmol/L]	n.a.	35.67 ± 22.79	
						T0 – α-amylase - Evening activity [3] [nmol/L]	n.a.	109.87 ± 90.46	
						T0 – α-amylase - Circadian rhythm [4] [nmol/L]	n.a.	-74.30 ± 81.15	
						T0 – α-amylase - Awakening (raw) [nmol/L]	n.a.	32.08 ± 20.55	
						T0 – α-amylase - Awakening + 30 min (raw) [nmol/L]	n.a.	39.27 ± 31.78	
						T1 – Cortisol - Awakening response [1] [nmol/L]	n.a.	6.82 ± 11.59	
						T1 – Cortisol - Morning activity [2] [nmol/L]	n.a.	29.37 ± 10.01	
						T1 – Cortisol - Evening activity [3] [nmol/L]	n.a.	5.95 ± 13.11	
						T1 – Cortisol - Circadian rhythm [4] [nmol/L]	n.a.	23.42 ± 16.43	
						T1 – Cortisol - Awakening (raw) [nmol/L]	n.a.	25.96 ± 11.68	
						T1 – Cortisol - Awakening + 30 min (raw) [nmol/L]	n.a.	32.78 ± 11.45	
						T1 – α-amylase - Awakening response [1] [nmol/L]	n.a.	-12.41 ± 55.37	
						T1 – α-amylase - Morning activity [2] [nmol/L]	n.a.	59.95 ± 36.03	

						T1 – α-amylase - Evening activity [3] [nmol/L]	n.a.	114.45 ± 92.94
						T1 – α-amylase - Circadian rhythm [4] [nmol/L]	n.a.	-54.49 ± 79.48
						T1 – α-amylase - Awakening (raw) [nmol/L]	n.a.	66.16 ± 47.41
						T1 – α-amylase - Awakening + 30 min (raw) [nmol/L]	n.a.	53.75 ± 43.38
(‡)			♂ 18 ♀ 29; Age (Mean ± SD) = 36.77 ± 10.42) yrs.; Insurance company employees (‡ Control group)			(*19 subjects)		
				T0	12.04 ± 5.61	T0 – Cortisol - Awakening response [1] [nmol/L]	n.a.	4.32 ± 11.23
				T1	10.23 ± 5.48	T0 – Cortisol - Morning activity [2] [nmol/L]	n.a.	30.95 ± 15.60
				T2	10.55 ± 5.34	T0 – Cortisol - Evening activity [3] [nmol/L]	n.a.	3.51 ± 3.82
						T0 – Cortisol - Circadian rhythm [4] [nmol/L]	n.a.	27.43 ± 15.77
						T0 – Cortisol - Awakening (raw) [nmol/L]	n.a.	28.79 ± 16.54
						T0 – Cortisol - Awakening + 30 min (raw) [nmol/L]	n.a.	33.11 ± 16.62
						T0 – α-amylase - Awakening response [1] [nmol/L]	n.a.	4.97 ± 21.58
						T0 – α-amylase - Morning activity [2] [nmol/L]	n.a.	33.35 ± 19.56
						T0 – α-amylase - Evening activity [3] [nmol/L]	n.a.	121.62 ± 82.88
						T0 – α-amylase - Circadian rhythm [4] [nmol/L]	n.a.	-88.27 ± 83.36
						T0 – α-amylase - Awakening (raw) [nmol/L]	n.a.	30.86 ± 20.12
						T0 – α-amylase - Awakening + 30 min (raw) [nmol/L]	n.a.	35.83 ± 24.36
						T1 – Cortisol - Awakening response [1] [nmol/L]	n.a.	4.47 ± 13.27
						T1 – Cortisol - Morning activity [2] [nmol/L]	n.a.	31.05 ± 11.19
						T1 – Cortisol - Evening activity [3] [nmol/L]	n.a.	4.56 ± 7.59
						T1 – Cortisol - Circadian rhythm [4] [nmol/L]	n.a.	26.49 ± 13.30
						T1 – Cortisol - Awakening (raw) [nmol/L]	n.a.	28.82 ± 13.19
						T1 – Cortisol - Awakening + 30 min (raw) [nmol/L]	n.a.	33.29 ± 12.83
						T1 – α-amylase - Awakening response [1] [nmol/L]	n.a.	17.77 ± 47.22
						T1 – α-amylase - Morning activity [2] [nmol/L]	n.a.	78.74 ± 117.96
						T1 – α-amylase - Evening activity [3] [nmol/L]	n.a.	126.89 ± 74.24
						T1 – α-amylase - Circadian rhythm [4] [nmol/L]	n.a.	-48.16 ± 109.03
						T1 – α-amylase - Awakening (raw) [nmol/L]	n.a.	17.77 ± 47.22
						T1 – α-amylase - Awakening + 30 min (raw) [nmol/L]	n.a.	78.74 ± 117.96
Giessing et al., 2020	DE	N-of-1 trial	♂ 1 Age = 28 yr.; Patrol police officer	SF-36 (0-100)		Saliva		Mean ± SD	High
				Bodily pain	84	Cortisol [nmol/L] – Awakening	immunoassay	10.64 ± 4.99	
				Emotional well-being	96	Cortisol [nmol/L] – Awakening + 30 min	immunoassay	12.77 ± 4.37	
				Energy/Fatigue	60	Cortisol [nmol/L] – Awakening + 6h	immunoassay	4.10 ± 1.72	
				General health	92	Cortisol [nmol/L] – Bedtime	immunoassay	1.85 ± 2.62	
				Physical functioning	100	α-amylase [U/mL] – Awakening		56.22 ± 19.44	

				Social functioning	100		ADVIA chemistry XPT		
				Role limits – Emotional	100	α-amylase [U/mL]– Awakening + 30 min	ADVIA chemistry XPT	56.57 ± 26.75	
				Role limits – Physical	100				
				WHO-5		α-amylase [U/mL]– Awakening + 6h	ADVIA chemistry XPT	166.13 ± 51.23	
				Baseline	64				
				During the study	68	α-amylase [U/mL] – Bedtime	ADVIA chemistry XPT	77.28 ± 37.41	
Harris et al., 2007	NO	Cross-sectional	♀ 44; Age (Mean ± SD) = 48 ± 8.2 yrs.; Nursing staff	SF-36 (0-100)	Mean ± SD	Saliva		Mean ± SD	High
				Bodily pain (*44)	71.3 ± 24.6	Cortisol [nmol/L]	RIA	n.a.	
				Emotional well-being (*42)	79.7 ± 14.3				
				Energy/Fatigue (*42)	56.8 ± 19.1				
				General health (*43)	75.6 ± 16.1				
				Physical functioning (*42)	87.7 ± 11.4				
				Social functioning (*44)	81.8 ± 21.8				
				Role limits – Emotional (*42)	87.7 ± 27.8				
				Role limits – Physical (*43)	81.8 ± 31.1				
Jordakieva et al., 2021 (†)	AT	Cross-sectional	♂ 4 ♀ 28; Age (Mean ± SD) = 52.0 ± 4.0 yrs.; Hospital workers († Rotating night shift workers)	WHOQOL-Bref (0-20)	Mean ± SD	Blood		Mean ± SD	High
				Physical	16.80 ± 1.85	CRP [mg/dL]	Cobas® 8000	0.25 ± 0.31	
				Psychological	16.51 ± 2.01	IL-6 [pg/mL]	Cobas® 8000	2.49 ± 1.68	
				Social relationship	15.46 ± 1.92				
				Environmental	16.11 ± 1.82				
(‡)			♂ 2 ♀ 36; Age (Mean ± SD) = 52.0 ± 4.0 yrs.; Hospital workers (‡ Day workers)	WHOQOL-Bref (0-20)	Mean ± SD	Blood		Mean ± SD	
				Physical	16.45 ± 1.97	CRP [mg/dL]	Cobas® 8000	0.15 ± 0.17	
				Psychological	16.08 ± 2.05	IL-6 [pg/mL]	Cobas® 8000	2.13 ± 1.13	
				Social relationship	15.37 ± 2.84				
				Environmental	16.11 ± 2.54				
Kanefsky et al., 2019	US	Cross-sectional	♂ 77 ♀ 5; Age (Mean ± SD) = 32.7 ± 7.1 yrs.; Active duty military personnel	SF-36 (0-100)	Mean ± SD	Blood		Mean ± SD	Moderate
				Bodily Pain	n.a.	IL-6 [pg/ml]	SimoaTM	n.a.	
				Emotional well-being	n.a.	IL-10 [pg/ml]	SimoaTM	n.a.	
				Energy/Fatigue	n.a.	TNF-α [pg/ml]	SimoaTM	n.a.	
				General health	n.a.				
				Physical functioning	n.a.				
				Social Functioning	n.a.				
				Role limits – Physical	n.a.				
				Role limits – Emotional	n.a.				
	EG		n. 272;	WHOQOL-Bref (0-100)	Mean ± SD	Blood			High

Kasemy et al., 2020 (†)		Cross-sectional	Age (Mean ± SD) = 36.4 ± 10.2 yrs.; Physicians	Physical	64.0 ± 2.4	IL-6 [pg/ml]	ELISA	n.a.	
				Psychological	63.4 ± 2.3	TNF-α [pg/ml]	ELISA	n.a.	
				Social relationship	57.6 ± 6.1				
				Environmental	51.7 ± 9.4				
(‡)			n. 268; Age (Mean ± SD) = 34.7 ± 10.4 yrs.; Nurses	Physical	65.9 ± 2.5	IL-6 [pg/ml]	ELISA	n.a.	
				Psychological	65.3 ± 2.5	TNF-α [pg/ml]	ELISA	n.a.	
				Social relationship	62.4 ± 6.9				
				Environmental	59.7 ± 10.4				
(¥)			n. 540; Age (Mean ± SD) = 36.0 ± 11.3 yrs.; Non-Health Care Workers	Physical	66.0 ± 2.4	IL-6 [pg/ml]	ELISA	n.a.	
				Psychological	65.2 ± 2.5	TNF-α [pg/ml]	ELISA	n.a.	
				Social relationship	62.3 ± 7.0				
				Environmental	60.1 ± 10.3				
Nickel et al., 2007 (†)	A	RCT	♂ 36; Age (Mean ± SD) = 33.5 ± 7.4 yrs.; Blue collar (30.5%), white-collar (50.0%), self-employed (19.4%) († Intervention group)	SF-36 (0-100)	Mean ± SD	Saliva		Mean ± SD	Moderate
				T0 – Bodily pain	78.3 ± 6.0	T0 – Cortisol – Awakening [nmol/L]	n.a.	17.8 ± 3.2	
				T0 – Emotional well-being	70.7 ± 6.1	T0 – Cortisol - Awakening + 15 min [nmol/L]	n.a.	25.9 ± 3.3	
				T0 – Energy/Fatigue	60.4 ± 5.2	T0 – Cortisol - Awakening + 30 min [nmol/L]	n.a.	28.4 ± 3.5	
				T0 – General health	61.7 ± 5.4	T0 – Cortisol - Awakening + 60 min [nmol/L]	n.a.	27.3 ± 3.8	
				T0 – Physical functioning	89.5 ± 7.9				
				T0 – Social functioning	84.1 ± 6.8				
				T0 – Role limits – Physical	87.7 ± 6.5				
				T0 – Role limits – Emotional	85.0 ± 5.8				
				T1 – Bodily pain	79.7 ± 6.2	T1 – Cortisol - Awakening [nmol/L]	n.a.	15.5 ± 2.4	
				T1 – Emotional well-being	75.6 ± 4.0	T1 – Cortisol - Awakening + 15 min [nmol/L]	n.a.	23.4 ± 3.5	
				T1 – Energy/Fatigue	66.4 ± 4.6	T1 – Cortisol - Awakening + 30 min [nmol/L]	n.a.	24.1 ± 2.2	
				T1 – General health	64.9 ± 4.4	T1 – Cortisol - Awakening + 60 min [nmol/L]	n.a.	19.2 ± 2.6	
				T1 – Physical functioning	92.1 ± 4.2				
				T1 – Social functioning	88.8 ± 4.3				
				T1 – Role limits – Physical	88.5 ± 4.0				
				T1 – Role limits – Emotional	89.9 ± 4.4				
(‡)			♂ 36; Age (Mean ± SD) = 32.0 ± 8.2 yrs.; Blue collar (27.8%), white-collar (50.0%), self-employed (22.2%)	T0 – Bodily pain	81.5 ± 4.9	T0 – Cortisol - Awakening [nmol/L]	n.a.	17.7 ± 3.3	
				T0 – Emotional well-being	70.8 ± 6.4	T0 – Cortisol - Awakening + 15 min [nmol/L]	n.a.	26.3 ± 4.2	
				T0 – Energy/Fatigue	61.0 ± 5.7	T0 – Cortisol - Awakening + 30 min [nmol/L]	n.a.	28.6 ± 3.8	
				T0 – General health	67.6 ± 6.3	T0 – Cortisol - Awakening + 60 min [nmol/L]	n.a.	27.1 ± 3.9	
				T0 – Physical functioning	90.2 ± 7.1				
				T0 – Social functioning	83.2 ± 6.3				
				T0 – Role limits – Physical	87.3 ± 5.6				

			(‡ Control group)	T0 – Role limits – Emotional	83.6 ± 5.6			
				T1 – Bodily pain	81.0 ± 4.8	T1 – Cortisol - Awakening [nmol/L]	n.a.	16.9 ± 2.6
				T1 – Emotional well-being	71.2 ± 7.4	T1 – Cortisol - Awakening + 15 min [nmol/L]	n.a.	25.7 ± 4.9
				T1 – Energy/Fatigue	60.8 ± 6.7	T1 – Cortisol - Awakening + 30 min [nmol/L]	n.a.	27.1 ± 3.8
				T1 – General health	66.6 ± 5.8	T1 – Cortisol - Awakening + 60 min [nmol/L]	n.a.	25.2 ± 4.0
				T1 – Physical functioning	90.4 ± 6.4			
				T1 – Social functioning	83.9 ± 5.9			
				T1 – Role limits – Physical	86.9 ± 5.4			
				T1 – Role limits – Emotional	82.2 ± 6.2			
Özyürek et al., 2020	TR	Cross-sectional	♀ 60; Age (Mean ± SD) = 28.6 ± 6.1 yrs.; Nurses	SF-36 (0-100)	Mean ± SD	Blood		Mean ± SD	High
				Bodily Pain	50.6 ± 12.0	TOS (µmol/H2O2 equiv/L)	Colorimetric assay	8.17 ± 6.38	
				Emotional well-being	52.9 ± 9.2				
				Energy/Fatigue	38.3 ± 10.0	TAS (mmol/trolox equiv/L)	Colorimetric assay	1.20 ± 0.31	
				General health	44.8 ± 9.7				
				Physical functioning	48.1 ± 6.9	Cortisol (µg/dL)	Chemo-luminescent enzyme assay method	6.98 ± 2.83	
				Social Functioning	40.1 ± 13.1				
				Role limits – Physical	23.5 ± 6.3				
				Role limits – Emotional	57.7 ± 15.8				
				PCS	40.5 ± 10.0				
				MCS	43.7 ± 8.6				
(†)			♀ 30; Age (Mean ± SD) = n.a.; († Daytime)	PCS	42.4 ± 8.9	TOS (µmol/H2O2 equiv/L)	Colorimetric assay	7.42 ± 3.4	
				MCS	42.5 ± 10.3	TAS (mmol/trolox equiv/L)	Colorimetric assay	1.25 ± 0.29	
						Cortisol (µg/dL)	Chemo-luminescent enzyme assay method	6.43± 2.42	
(‡)			♀ 30; Age (Mean ± SD) = n.a.; (‡ Shift)	PCS	45.5 ± 8.3	TOS (µmol/H2O2 equiv/L)	Colorimetric assay	8.92 ± 8.40	
				MCS	35.5 ± 9.4	TAS (mmol/trolox equiv/L)	Colorimetric assay	1.15 ± 0.32	
						Cortisol (µg/dL)	Chemo-luminescent enzyme assay method	7.54 ± 3.13	
Pandaran Sudheeran et al., 2016	IND	RCT	♂ 51 ♀ 9; Age (Mean ± SD) = 33 ± 7 yrs.; Private company employees	SF-36 (0-100)	Mean ± SE	Blood		Mean ± SE	High
(†)			30 subjects	T0 – Overall mean	66.41 ± 13.88	T0 – Catalase [K/g Hb]	H2O2 decomposition	114.46 ± 5.54	

	(† Intervention group – Curcumogalatto-mannoside (CGM) supplementation)			T0 – Superoxide Dismutase (SOD) [U/mL]	Nitro blue tetrazolium reduction	0.61 ± 0.12
				T0 – Glutathione Peroxidase (GPx) [U/mL]	H2O2 degradation	41.85 ± 4.62
				T0 – Glutathione [nmol/mg Hb]	Moron's method	19.69 ± 5.85
				T0 – Malondialdehyde (MDA) [nmol/dL]	Colorimetric	86.2 ± 4.14
		T1 – Overall mean	75.14 ± 10.48	T1 – Catalase [K/g Hb]	H2O2 decomposition	141.54 ± 10.15
				T1 – Superoxide Dismutase (SOD) [U/mL]	Nitro blue tetrazolium reduction	1.04 ± 0.09
				T1 – Glutathione Peroxidase (GPx) [U/mL]	H2O2 degradation	68.31 ± 3.69
				T1 – Glutathione [nmol/mg Hb]	Moron's method	27.69 ± 9.85
				T1 – Malondialdehyde (MDA) [nmol/dL]	Colorimetric	44.78 ± 8.90
(‡)	30 subjects (‡ Intervention group – Standard curcumin supplementation)	T0 – Overall mean	57.61 ± 10.27	T0 – Catalase [K/g Hb]	H2O2 decomposition	122.14 ± 5.19
				T0 – Superoxide Dismutase (SOD) [U/mL]	Nitro blue tetrazolium reduction	0.54 ± 0.08
				T0 – Glutathione Peroxidase (GPx) [U/mL]	H2O2 degradation	34.20 ± 2.44
				T0 – Glutathione (GSH) [nmol/mg Hb]	Moron's method	12.82 ± 5.50
				T0 – Malondialdehyde (MDA) [nmol/dL]	Colorimetric	84.66 ± 9.67
		T1 – Overall mean	63.82 ± 9.91	T1 – Catalase [K/g Hb]	H2O2 decomposition	127.63 ± 9.16
				T1 – Superoxide Dismutase (SOD) [U/mL]	Nitro blue tetrazolium reduction	0.66 ± 0.09
				T1 – Glutathione Peroxidase (GPx) [U/mL]	H2O2 degradation	39.69 ± 1.84
				T1 – Glutathione (GSH) [nmol/mg Hb]	Moron's method	16.49 ± 5.50
				T1 – Malondialdehyde (MDA) [nmol/dL]	Colorimetric	63.50 ± 9.21
(¥)	30 subjects (‡ Placebo group)	T0 – Overall mean	61.70 ± 13.19	T0 – Catalase [K/g Hb]	H2O2 decomposition	106.56 ± 4.64
				T0 – Superoxide Dismutase (SOD) [U/mL]	Nitro blue tetrazolium reduction	0.61 ± 0.12

						T0 – Glutathione Peroxidase (GPx) [U/mL]	H2O2 degradation	26.40 ± 4.17	
						T0 – Glutathione (GSH) [nmol/mg Hb]	Moron's method	16.68 ± 4.64	
						T0 – Malondialdehyde (MDA) [nmol/dL]	Colorimetric	77.61 ± 3.22	
				T1 – Overall mean	58.78 ± 12.38	T1 – Catalase [K/g Hb]	H2O2 decomposition	104.25 ± 6.03	
						T1 – Superoxide Dismutase (SOD) [U/mL]	Nitro blue tetrazolium reduction	1.04 ± 0.09	
						T1 – Glutathione Peroxidase (GPx) [U/mL]	H2O2 degradation	29.19 ± 3.24	
						T1 – Glutathione (GSH) [nmol/mg Hb]	Moron's method	15.29 ± 4.17	
						T1 – Malondialdehyde (MDA) [nmol/dL]	Colorimetric	76.69 ± 3.68	
Poon et al., 2018 (†)	HK	Cross-sectional	♂ 14; Age (Mean ± SD) = 29.1 ± 6.1 yrs.; Jockeys (†)	WHOQOL-Bref (0-20) Physical Psychological Social relationship Environmental	Mean ± SD 16.1 ± 1.7 15.9 ± 1.9 16.6 ± 1.6 15.8 ± 2.2	Blood Cortisol [ug/dl]	Immunoassay	Mean ± SD 15.8 ± 4.1	Moderate
Rector et al., 2014 (†)	D	Cross-sectional	♂ 283 ♀ 46; Age (Mean ± SD) = 46.6 ± 9.8 yrs.; Employees († CMV positive)	SF-12 Low CMV titer - Mental domain	Mean (SE) 49.96 (1.1)	Blood (Hs CRP) – Saliva (Cortisol) Hs CRP	Immuno-nephelometry	--	Moderate
				Middle CMV titer - Mental domain	47.00 (0.6)	Cortisol - Awakening	Immunoassay	--	
				High CMV titer - Mental domain	45.22 (1.4)	Cortisol - Awakening + 30 min	Immunoassay	--	
						Cortisol - Awakening + 2h	Immunoassay	--	
						Cortisol - 6:00 pm	Immunoassay	--	
						Cortisol - 10:00 pm	Immunoassay	--	
(‡)			♂ 497 ♀ 61; Age (Mean ± SD) = 43.6 ± 10.1 yrs.; Employees (‡ CMV negative)	Mental domain	n.a.	Hs CRP	Immuno-nephelometry	--	
						Cortisol - Awakening	Immunoassay	--	
						Cortisol - Awakening + 30 min	Immunoassay	--	
						Cortisol - Awakening + 2h	Immunoassay	--	
						Cortisol - 6 p.m.	Immunoassay	--	
						Cortisol - 10 p.m.	Immunoassay	--	
Rosemberg et al., 2019	US	Cross-sectional	♀ 49; Age (Mean ± SD) = 40.4 ± 10.5 yrs.; Hotel housekeepers	SF-12 Physical domain Mental domain	Mean ± SD 49.3 ± 8.0 48.4 ± 10.5	Blood Allostatic Load Index – clinical Allostatic Load Index – quartile CRP [mg/l] Cortisol [ug/dl]	n.a. n.a.	Mean ± SD 2.3 ± 1.3 2.1 ± 1.5 4.2 ± 4.7 15.3 ± 5.3	High
Sadowska	PL			WHOQOL-Bref	Mean ± SD	Blood		Mean ± SD	Moderate

et al., 2020 (†)		Cross-sectional	♂ 8 ♀ 40; Age (Mean ± SD) = 45.8 ± 11.7 yrs.; Professional caregivers	Physical health domain	21.88 ± 3.02	IL-6 [pg/ml]	ELISA	2.08 ± 1.35
				Psychological domain	20.98 ± 2.94	CRP [mg/L]	Immuno-turbidimetric-reinforced latex particles CRPL3	2 ± 1.77
				Social relationship domain	10.94 ± 1.71	Cortisol [μg/dl]	Electrochemo-luminescence	11.33 ± 5.34
				Environmental domain	26.52 ± 4.1			
(‡)			♂ 8 ♀ 22; Age (Mean ± SD) = 58.87 ± 3.26 yrs.; Professionally active adults	Physical health domain	23.07 ± 2.24	IL-6 [pg/ml]	ELISA	2.82 ± 2.11
				Psychological domain	21 ± 3.14	CRP [mg/L]	Immuno-turbidimetric-reinforced latex particles CRPL3	3.54 ± 4.92
				Social relationship domain	11.4 ± 2.18	Cortisol [μg/dl]	Electrochemo-luminescence	11.52 ± 4.67
				Environmental domain	27.57 ± 4.01			
Vlahoyiannis et al., 2022 (†)	GR	Cross-sectional	n. 20; Age (Mean ± SD) = 42.9 ± 6.8 yrs.; Nurses († Morning shift)	SF-36 (0-100)	Median (IQR)	Saliva		High
				Total score	76.9 (64.2 – 85.1)	Melatonin AM [pg/mL]	ELISA	2.9 ± 2.1
				Bodily Pain	67 (51 – 74)	Melatonin PM [pg/mL]	ELISA	3.8 ± 2.6
				Energy/Fatigue	65 (60 – 74)			
				General health	72 (66 – 82)			
				Physical functioning	90 (81.3 – 100)			
(‡)			n. 20; Age (Mean ± SD) = 42.9 ± 6.8 yrs.; Nurses († Rotating shift)	Total score	60 (51.1 – 70.4)	Melatonin AM [pg/mL]	ELISA	2.8 ± 1.5
				Bodily Pain	57 (41 – 74)	Melatonin PM [pg/mL]	ELISA	3.1 ± 1.7
				Energy/Fatigue	58 (46 – 64)			
				General health	62 (53 – 67)			
				Physical functioning	80 (65 – 90)			

Feicht et al., 2013: [1]Awakening response = (cortisol at awakening + 30 min) – (cortisol at awakening); [2]Morning activity = mean of cortisol at awakening and cortisol at awakening + 30 min; [3]Evening activity = cortisol at 8 p.m.; [4]Circadian rhythm amplitude = morning activity – evening activity

TNF-α = Tumor Necrosis Factor alpha; IL = Interleukin; dROM = diacrons Reactive Oxygen Metabolic; BAP = Biological Antioxidant Potential; TGF-α *= Transforming Growth Factor alpha;* TNF-β *= Tumor Necrosis Factor beta; CRP = C Reactive Protein; TOS = Total Oxidant Status; TAS = Total Antioxidant Status; CAT = Catalase; SOD = Superoxide Reductase; GPx = Glutathione Peroxidases; MDA = Malondialdehyde.*