Table S3

Details of Reviewed Studies – (online only)

Study	Area of Interest	Participants (sample size, age (mean ± SD), school level) / Participant Control	Educational setting & presence of professor/ teacher	HRV measures: HRV device / Software / Preprocessing	HRV measures: Measurement Standards Compliance	HRV measures: Baseline measure / Measuring time	HRV measures: HRV parameters: Time domain	HRV measures: HRV parameters: Frequency domain	HRV measures: HRV parameters: Non-linear domain	Concurrently measured data: Psycho-physiological data	Concurrently measured data: Self-report & performance data	Correlation levels with HRV**: Psycho-physiological & Others	Correlation levels with HRV**: Performance
[1] Ramírez-Adrados et al., 2020	Stress	110 (25.3 ± 3.77) Undergraduates (Physiotherapy) N/R	Exam (Oral) w. professor	Polar V800 watch (WB) Kubios N/R/A	N/R	Baseline measured 4 phases (50min) - Before exam - First 1/5 of exam - Last 1/5 of exam - After exam	RMSSD pNN50	LF HF LF/HF	SD1 SD2			L3 - Heart rate - SUDS	L4 - Grade
[2] Huhn et al., 2018	Stress	40 (20.21 ± 3.10) Undergraduates (Medical) N/R	Exam (Oral) Learning (Seminar) w. professor	Polar V800 heart rate monitor (CB) N/R (Polar Flow) N/R	Malik (1996)	Baseline measured 3 phases - Oral examination (15min) - Seminar (15min) - relaxation (15min)	SDNN RMSSD pNN50	LF HF LF/HF	N/A	Hair cortisol	Stress (PSQ) Empathy (JSPE-S) Burnout (MBI-SS) Self-efficacy (GSE) Depression (PHQ-9)	L3 - Hair cortisol - PSQ	-
[3] Hunziker et al., 2012	Stress	28 (29 ± 4.9) Professionals (Residents) N/R	Learning (Clinical practice: simulation) w/o. professor	3-lead ECG (Sta) N/R N/R	N/R	Baseline measured 3 phases - Before CPR (30min) - During CPR (Task-dependent) - After CPR (30min)	SDNN	N/A	N/A	Blood cortisol Heart rate	Stress (Single-item, 10-point scale, not validated) Performance (CPR)	L1 - Heart rate L2 - Blood cortisol - Stress	L3 - CPR
[4] Nakayama et al., 2018	Stress	74 (21 (20–27)) Undergraduates (Nursing) Excl: hypertension, heart/kidney disease, diabetes, medication Instr: No alcohol/ caffeine (-1 day), Sleep well (-1 night)	Learning (Clinical practice: simulation) w. hidden professor	Holter ECG (Sta) N/R N/R/A	Malik (1996)	Baseline measured 4 phases - Break (5min) - Patient care (10min) - Reporting (5min) - Debriefing (10min)	N/A	HF LF/HF	N/A	Heart rate	Stress (Interview)	L3 - Heart rate - Stress (Interview)	-

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[5] Kim & Nam, 2010	Stress	109 (27.61 (24-40)) Undergraduates (Medical) / N/R	Learning (Clinical practice: simulation) w/o. professor	SA-6000 (Sta) / SA-6000 (Cardiovit AT-10 Plus) / N/R/A	Malik (1996)	Baseline measured / After clinical training (5min)	N/A	LF LFn HF HFn LF/HF TotPow	N/A	Heart rate	Performance (Grade)	L3 - Heart rate	L4 - Grade
[6] Timberlake et al., 2018	Stress	24 (24.5 ± 1.4) Undergraduates (Medical) / N/R	Exam (Skill assessment) Learning (Clinical practice: simulation, watching video) w. professor	Biopac MP150WSW (Sta) / Biopac MP150WSW (Acq-Knowledge) / N/R/A	Malik (1996)	Baseline measured / 2 phases - Baseline skills assessment (Task-dependent) - Post skills assessment (Task-dependent)	SDNN RMSSD	LF HF	N/A	Heart rate Respiration frequency	Self-monitoring ability (12-item, 5-point scale, not validated) Feedback (12-item, 5-point scale, not validated) Performance (Skills assessment)	L3 - Heart rate - Respiration frequency	L4 - Skill assessment
[7] Redondo-Flórez et al., 2020	Stress	82 (19.63 ± 2.29) Undergraduates (Pharmacy and Biotechnology) / N/R	Learning (Clinical practice: laboratory) w. professor	Polar V800 watch (WB) / Kubios / N/R/A	N/R	Baseline measured / 4 phases - Before practice (10min) - 1/3 of practice (Task-dependent) - 3/3 of practice (Task-dependent) - After practice	RMSSD pNN50	LF HF LF/HF	SD1 SD2	Heart rate	Stress (SUDS)	L3 - Heart rate - SUDS	-

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[8] Visnovcova et al., 2014	Stress	16 (23.3 ± 0.2) Undergraduates (Medical) Excl: respiratory/endocrine/ cardiovascular/ infectious/mental health issues; obesity/ under/overweight; substance abuse; smokers; female not in the proliferative phase Instr: No alcohol/ caffeine (-12h)	Exam (Written) w/o. professor	VarCorPF8 chest belt (Sta+CB) N/R N/R	N/R	Baseline measured 2 phases - Rest period (300 R-R intervals segments) - Stress period (300 R-R intervals segments	MeanRR	HF	N/A	TNF – α	N/A	L3 - TNF – α	-
[9] Hammoud et al., 2018	Stress	90 (20.57 ± 1.26) Undergraduates (Science) Excl: cardiovascular diseases; severe tachycardia; diabetes; hypertension	Exam (Written) w/o. professor	2-lead Cardio Diagnostics cardiac monitoring devices (Sta) Kubios Done & Reported	Malik (1996)	Baseline measured 3 phases - Before exam (1h) - During exam (2h) - After exam (1h)	SDNN RMSSD pNN50	LF HF LF/HF	SD1 SD2	Heart rate	Stress (Single-item, 3-point scale, not validated) Lifestyle (Caffeine intake, smoking, physical activity)	L3 - Heart rate - Stress	-
[10] Castaldo et al., 2019	Stress	42 (21.5 ± 3.5) Undergraduates (Biomedical Engineering) Excl: heart disease; hypertension; metabolic disorders; obesity Instr: No alcohol/ medication/drugs (-24h)	Exam (Oral)	3-lead Easy ECG Pocket (Sta) Kubios Done & Reported	Malik (1996)	Baseline measured 2 phases (5min, 3min, 2min, 1min, 0.5min) - Stress phase (verbal exam) - Rest phase	SDNN RMSSD NN50 pNN50 MeanNN	LF HF LF/HF TotPow	SD1 SD2 ApEn SampEn D2 dfa1 dfa2 RPImean RPImax REC RPadet ShanEn	Heart rate - meanHR - SDHR	N/A	-	-

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[11] Castaldo et al., 2016	Stress	42 (18.7±8.7) Undergraduates (Biomedical Engineering) N/R	Exam (Oral)	3-lead ECG (Sta) Kubios Done & Reported	Malik (1996)	Baseline measured 2 phases (5min, 3min) - Stress phase (exam) - Rest phase	SDNN RMSSD pNN50 MeanRR	LF HF LF/HF	SD1, SD2 SampEn D2, dfa1/2 RPImean RPImax REC Rpadet ShanEn	N/A	N/A	-	-
[12] Papousek et al., 2010	Stress	65 (20.5±3.4) Undergraduates (Psychology) Excl: cardiovascular affecting medication; psychological disorders Instr: No alcohol (-12h), No caffeine (-2h); No smoking (-1h)	Exam (Oral) w. hidden professor	Brainvision BrainAmp ENRG Research Amplifier (Sta) N/R Done & Reported	Malik (1996)	Baseline measured 4 phases - Baseline (3min) - Anticipation (3min) - Challenge (3min) - Recovery (3min)	N/A	LF HF LF/HF	N/A	Blood pressure Heart rate	Stress (KUSTA), Affect (PANAS), Academic self-concept (SESSKO)	L1 - Heart rate L2 - KUSTA (Trait N, P: LF State P: LF/HF) L3 - Blood pressure L4 - KUSTA	-
[13] Wimmer et al., 2019	Stress	68 (24.3 ± 4.8) Undergraduates (Psychology) N/R	Exam (Oral) w. professor	CardioMem CM 4000 Holter ECG (Sta) Same as above N/R/A	N/R	Baseline measured 3 phases - Baseline (5min) - Presentation (5min) - Recovery (5min)	SDNN	N/A	N/A	Heart rate	Academic self-concept (SASK)	L3 - Heart rate	-

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[14] Minkley et al., 2017	Stress	104 (17.48 ± 0.98) Secondary school students Excl: serious medical conditions; long-term medication; over/underweight (BMI > 25 or < 18.5 kg/m^2)	Learning (Clinical practice: laboratory) Experiment (Intervention : passive /active/interactive)	VitalScan ANS+ chest belt (Medeia Ltd.) (CB) QHRV Stress Assessment (Medeia Ltd.) N/R/A	Malik (1996)	Baseline measured 3 phases (5min, 10min, 15min, 20min, 25min, 30min, 35min) - Passive condition - Active condition - Interactive condition	RMSSD	LF/HF	N/A	Salivary cortisol	Emotion (AEQ) Stress (VAS) Performance (Knowledge test)	L1 - VAS (Passive) - AEQ (Boredom) L3 - Salivary cortisol L4 - VAS (Active, interactive) - AEQ (Enjoyment)	L3 - Grade
[15] Prichard et al., 2012	Stress	5 - consultants (51) - fellows (33) Professionals (Consultant surgeons and endocrine surgical fellows) Excl: regular medication; history of cardiovascular disease/diabetes; non-average fitness; smokers Instr: No caffeine (-1h)	Learning (Clinical practice: surgery) w/o. professor	Polar RS 800 watch (WB) Polar precision performance program N/R/A	Malik (1996)	Baseline measured 2 phases (50 cases) - Pre-operative period (5min) - Intra-operative period (5min)	SDNN RMSSD pNN50	LF HF LF/HF	N/A	Energy consumption Heart rate	N/A	L3 - Heart rate	-
[16] Hurley et al., 2015	Stress	16 (24.375 (21-30)) Undergraduates (Medical) Excl: mental illness history; medication; smokers; BMI < 18 or > 25 kg/m^2. Male aged 18-40 only	Learning (Clinical practice: simulation)	Nexus-4 ambulatory device (Sta) N/R N/R	N/R	Baseline measured During session (5min)	SDNN RMSSD	N/A	N/A	Blood pressure Heart rate Salivary cortisol Skin conductance	N/A	L3 - Blood pressure - Heart rate - Salivary cortisol - Skin conductance	-

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[17] Visnovcova et al., 2014	Stress	70 (23.08 ± 0.17) Undergraduates (Medical) Excl: respiratory/endocrine/ cardiovascular/ infectious/mental health issues; obesity/ under/overweight; substance abuse; smokers; female not in the proliferative menstrual phase Instr: No alcohol/ caffeine (-12h); Empty bowels/bladders Conditions: quiet room; 23°C; 45%-55% humidity; 9.00 am-12.30 pm after breakfast (-2h)	Experiment (Cognitive: math)	VarCorPF8 (Sta+CB) N/R N/R	Malik (1996)	Baseline measured 5 phases - Baseline (6min) - Stroop test (6min) - Rest after stress-recovery (6min) - Mental arithmetic test (6min) - Recovery phase (6min)	SDRR MeanRR	LF HF	NCI NUPI 0V% 1V% 2LV% 2UV% Porta's index Guzik's index Ehlers' index	N/A	N/A	-	-
[18] Roeser et al., 2012	Stress	55 (23.04 ± 2.37) Undergraduates (Major: N/R) Excl: medication; BMI > 30 kg/m^2; base HR > 100 bpm	Experiment (Cognitive:math (Intervention: morningness/ eveningness) w. professor	Polar RS 800 watch (WB) Kubios N/R/A	Malik (1996)	Baseline measured 2 phases - Resting period (10min) - Stress period (5min)	RMSSD	LF/HF	N/A	Blood pressure Heart rate	Stress (Single-item, 10-point scale, not validated) Chronotype (MEQ) Affect (GVA) Sleep quality (PSQI) Coping strategy (SVF-78)	L3 - Blood pressure - Heart rate	-

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[19] Stein, 2020	Stress	36 (21) Undergraduates (Medical) Excl: medications w. autonomic effects Instr: No caffeine/exercise	Exam (Skill assessment) Learning (Clinical practice: simulation) w/o. professor	2-lead Actiheart (Sta) Kubios N/R/A	N/R	Baseline measured Simulation group (15min) Control group (15min)	SDNN RMSSD	HF	N/A	Heart rate	Stress (STAI -Y)	L3 - Heart rate L4 - STAI-Y	-
[20] Weenk et al., 2018	Stress	20 - consultants (46.20 ±7.16) - fellows and senior residents (35.43 ± 4.44) - junior residents (32.25 ± 1.83) Professionals (Consultants, fellows, residents) Excl: medication affecting heart rate	Learning (Clinical practice: surgery) w/o. professor	Single-lead, chest HealthPatch (CB) N/R N/R	Malik (1996)	Baseline measured 5 phases (48~72hr) - Baseline (15min) - Surgery (Task-dependent) - Outpatient clinic (Task-dependent) - Ward (Task-dependent) - Administrative work (Task-dependent)	SDNN RMSSD	LF/HF	N/A	Heart rate Real time stress percentage	Stress (STAI-SF)	L3 - Heart rate - STAI-SF	-
[21] Wetzel et al., 2010	Stress	30 (34.5 (26-58)) Professionals (Surgical residents) N/R	Learning (Clinical practice: surgery) w/o. professor	Polar S801i watch (WB) Polar Precision Software N/R/A	N/R	Baseline measured 3 phases (recording duration: N/R) - Baseline - Non-crisis simulation - Crisis simulation	RR interval HRV coefficient (C_HRV =SDNN/NN × 100)	LF/HF	N/A	Heart rate Salivary cortisol	Stress (Observed stress rating [by the surgical assistant, 10-point scale, not validated]) Stress (STAI-SF) Coping strategy (Interview) Performance (EPA, OSATS, OTAS)	L3 - Salivary cortisol - STAI-SF L4 - Heart rate	L4 - EPA - OSATS - OTAS

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[22] Hundertmark et al., 2019	Stress	60 (22.8 ± 2.6) Undergraduates (Medical) Instr: No alcohol caffeine/exercise (0d)	Learning (Peer tutoring) w. professor	Polar V800 watch (WB) Kubios N/R/A	Malik (1996)	N/R 5 phases - Preparation (30min) - First 30min of learning - Mid part (30min) - Last 30min of learning - Recovery phase (30min)	RMSSD	N/A	N/A	Salivary cortisol	Stress (TICS, VAS) Attachment (AAS) Personality (BFI-K, SAPS-R) Affect (PANAS) Resilience (RS 13) Performance (Course quality)	L3 - Stress (VAS)	L4 - Tutoring quality
[23] Baker et al., 2017	Stress	8 (N/R) Professionals (Anesthetic trainees) Excl: HRV-influencing medical conditions; regular medications; smokers Instr: No vigorous activity (-30min); no caffeine (-12h)	Learning (Clinical practice: simulation) w. professor	Polar RS800CX watch with chest belt (WB+CB) Polar Protrainer software N/R/A	Malik (1996)	Baseline measured 4 phases - Baseline (5min) - Preparation (5min) - Intubation (5min) - Post-intubation (5min)	N/A	LF/HF	N/A	N/A	Stress (STAI-SF)	L3 - STAI-SF	-
[24] Crewther et al., 2015	Stress	12 (20.1 ± 0.8) Undergraduates (Medical) Excl: Neuropsychiatric illness. Instr: No caffeine/alcohol (-1 night)	Learning (Clinical practice: simulation) w. professor	Zephyr chest belt (CB) MATLAB N/R/A	N/R	Baseline measured 4 phases (Task-dependent) - Base session - Mid session - Post session - Retest session	N/A	LF HF LF/HF	N/A	Heart rate Prefrontal cortex activity Salivary cortisol Salivary testosterone	Stress (STAI-SF) Stress (Single-item, 5-point scale, not validated) Task load (NASA-TLX) Performance (Skill performance)	L3 - Heart rate - Prefrontal cortex activity - Salivary cortisol - Salivary testosterone - STAI-SF - Stress	L3 - Skill assessment

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[25] Georgiou et al., 2019	Stress	21 (23-26) Undergraduates (Medical) N/R	Learning (Clinical practice: simulation)	Syneflash 3-lead holter ECG, Empatica E4 wristband (Sta+WB) Kubios N/R/A	N/R	Baseline measured 3 phases - Baseline (10min) - Exercise (9min) - Recovery (6min)	RR interval	LF HF LF/HF	N/A	Acc BVP EDA Heart rate IBI ST	Stress (STAI-SF)	L1 - IBI - EDA - STAI-SF	-
[26] Scrimin et al., 2019	Stress	91 (12.71 ± 0.56) Secondary school students N/R	Experiment (Intervention : video stressor)	3-lead ProComp Infiniti (Sta) Kubios N/R/A	Malik (1996)	Baseline measured 3 phases - Baseline (8min) - School-related stressor video (8min) - Recovery (6min)	NN50	N/A	N/A	N/A	Stress (AMOS 8-15), Temperament (EAS-CF) Affect (PANAS) Performance (Grade)	L2 - AMOS 8-15 - EAS-CF (Shyness temperament)	L3 - Grade : EAS-CF (Inhibited temperament) L4 - Grade : EAS-CF (Outgoing temperament)
[27] Wetzel et al., 2011	Stress	16 (32.8 ± 2.4) Professionals (Surgical residents) N/R	Experiment (Intervention : stress management training) w. professor	Polar S801i watch (WB+CB) N/R N/R/A	N/R	Baseline measured During simulations - Intervention group (Task-dependent) - Control group (Task-dependent)	HRV coefficient (C_HRV = SDNN/ NN × 100)	N/A	N/A	Heart rate Salivary cortisol	Stress (STAI-SF) Stress (Observed stress rating [by the surgical assistant, 10-point scale, not validated]) Coping strategy (Surgical coping questionnaire) Feedback (Interview) Performance (OSATS, OTAS, EPA, Surgical decision making [by observer])	L3 - Heart rate - Salivary cortisol - STAI-SF - Stress	L3 - OSATS - OTAS - EPA - Surgical decision making

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[28] Scrimin et al., 2019	Attention	62 (6.72 ± 0.57) Primary school students N/R	Experiment (Cognitive: stroop test) w. teacher	Polar+E8+E14 E42ProComp Infiniti (CB) Kubios Done & Reported	N/R	Baseline measured During session - Resting period (approximately 10min)	RMSSD	N/A	N/A	N/A	Classroom climate (38 items, 3-point scale, by researcher) Performance (Emotional stroop task)	L2 - Classroom climate	L2 - Stroop test
[29] Redondo et al., 2019	Attention	25 (22.4 ± 4.5) Undergraduates (Major: N/R) Excl: pharmacological treatment; smokers Instr: No alcohol (-24h); no caffeine (-12h); sleep ≥7h (-1 night)	Experiment (Psychomotor: PVT)	Polar RS800CX watch with chest belt (WB+CB) Kubios Done & Reported	Malik (1996)	Baseline measured 3 phases - Baseline (5min) - Experimental session 1 (10min) - Experimental session 2 (10min)	RMSSD	N/A	N/A	Accommodative response (Microfluctuation)	Sleep quality (Stanford Sleepiness Scale) Performance (Psychomotor vigilance task)	L3 - Accommodative response	L4 - PVT
[30] Guo et al., 2019	Attention	118 (14 ± 1) Secondary school students Excl: cardiovascular disease; health issues	Experiment (Memory) w. teacher	Analog Devices AD8232 (Sta) N/R Done & Reported	Malik (1996)	N/R During experiment (Task-dependent, no more than 40min)	AVNN SDNN SDANN SDNNIdx RMSSD pNN50	LF HF TF VLF	SD1 SD2	Pulse rate variability	Cognitive load (Paas and Van Merriënboer cognitive load scale) Performance (Task performance)	-	L3 - Memory
[31] Watford et al., 2020	Stress Attention	81 (19.89 ± 2.84) Undergraduates (Psychology) Excl: excessive overweight/exercise/ caffeine consumption; medical or mental health issues	Experiment (Cognitive: math), (Intervention: video stressor) w/o. professor	Biopac MP150 (Sta) Kubios Done & Reported	Malik (1996)	Baseline measured 7 phases - Baseline (5min) Video stressor (3min) Video recovery 1/2 (2.5min/2.5min) Math stressor (3min) Math recovery 1/2 (2.5min/2.5min)	N/A	HF	N/A	Heart rate	Mindfulness (MAAS)	L3 - Heart rate - MAAS	-

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[32] Azam et al., 2018	Stress Attention	40 (21.870 ± 8.486) Undergraduates (Major: N/R) / Excl: anxiety/depressive disorder; hypertension; coronary artery disease; arrhythmias. Instr: No caffeine/ exercise (-24h)	Experiment (Cognitive: stroop test)	3-lead PowerLab (Sta) / LabChart Pro software / Done & Reported	Malik (1996)	Baseline measured / 2 phases - Baseline rest phase (5min) - Stress-induction phase (Task-dependent)	N/A	HF	N/A	Eye-tracking data Respiration rate Heart rate	Performance - Gaze behavior - Stroop test	L3 - Heart rate L4 - Respiration rate	L3 - Gaze behavior
[33] Mygind et al., 2018	Stress Attention	47 (10.9 ± 0.71) Primary school students / Excl: ADHD; autism	Experiment (Intervention: classroom /natural), (Cognitive: d2 test)	Polar Team2 Pro chest belt (CB) / Kubios / Done & Reported	N/R	Baseline measured / 2 days (day1 = natural environment, day 2 = classroom environment) - During session (approximately 20-min)	RMSSD	N/A	N/A	N/A	Performance (d2 test)	-	L3 - d2 test
[34] Kofman et al., 2006	Stress Attention	48 (22.4 ± 1.52) Undergraduates (Behavioral Sciences) / Excl: history of traumatic head injury with loss of consciousness; neurological or psychiatric disorders	Experiment (Cognitive: Task switching, stroop test) w. professor	Holter ECG (Sta) / BEAT software / N/R	Malik (1996)	Baseline measured / 2 phases - No stress period (10min) - Stress period (10min)	N/A	LF HF LF/HF	N/A	N/A	Stress (STAI) Performance (Task-switching, stroop test)	L3 - STAI	L3 - Stroop test

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[35] Dunne et al., 2019	Stress Attention	25 (N/R) Professionals (Emergency multidisciplinary team members) Excl: Alcohol/substance abuse (-6 months); schizophrenia; current antipsychotic use; recent anti-depressant start (<3 months); anti-depressant dose (>3 months)	Learning (Clinical practice: simulation) Experiment (Intervention : stress management program)	Fitbit Charge 2 wristband (WB) N/R N/R	N/R	Baseline measured No-treatment control group and intervention group (measured over 45 days)	N/A	HF	SD2	Heart rate Salivary cortisol Sleep quality (including sleeping time) TNF – α 24-hour ambulatory blood pressure	Depression, anxiety, and stress (DASS) Burnout (MBI-HSS)	L3 - Heart rate - Salivary Cortisol - TNF – α - Blood pressure	-
[36] Morales et al., 2019	Stress Attention	58 (30.33 ± 4.18) Professionals (Residents) Excl: medication; sleep disorder; females pregnant or in the luteal menstrual phase Instr: No alcohol/caffeine(-24h); No sleep deviation: ≤1hr from average	Experiment (Psychomotor), (Intervention: sleep deprived) w/o. professor	Polar RS800 watch with chest belt (WB+CB) Kubios Done & Reported	Malik (1996)	Baseline measured Control group and experimental group - Pre-test (10min) - Post-test (10min)	RMSSD	LF HF LF/HF	N/A	Salivary cortisol	Mood (EVEA) Performance (Psychomotor vigilance test)	L1 (RMSSD, LF, HF) - Salivary Cortisol - EVEA (Anxiety) L4 (LF/HF) - Salivary Cortisol - EVEA (Anxiety)	L2 (RMSSD, LF,HF) - PVT L4 (LF/HF) - PVT
[37] Bian et al., 2022	Stress	97 (19.78 ± 1.11) Undergraduates (Course of mental health) N/R	Exam (A job interview) w. interviewers (proxies for teachers or professors)	Biopac MP150 (Sta) Acq-Knowledge N/R/A	N/R	Baseline measured High 20% /Low 20% TAI group - Baseline (5min) - Stress (5min) - Recovery (5min)	LnRMSSD	LnLF, LnHF	N/A	N/A	Stress (TAI), Emotional Experience Report (9 scale),	L1 (LnLF, LnHF) -TAI L2 (LnRMSSD) -TAI	-

Study	Area of Interest	Participants (sample size, age (mean ± SD), school level) / Participant Control	Educational setting & presence of professor/ teacher	HRV measures: HRV device / Software / Preprocessing	HRV measures: Measurement Standards Compliance	HRV measures: Baseline measure / Measuring time	HRV measures: HRV parameters: Time domain	HRV measures: HRV parameters: Frequency domain	HRV measures: HRV parameters: Non-linear domain	Concurrently measured data: Psycho-physiological data	Concurrently measured data: Self-report & performance data	Correlation levels with HRV**: Psycho-physiological & Others	Correlation levels with HRV**: Performance
[38] Martinez-Pascual et al., 2022	Stress	86 (27.29 ± 6.66) Undergraduates (Physiotherapy) N/R	Learning (Clinical practice: simulation) w. professors	Polar V800 (CB) Kubios v3.0 Done & Reported	N/R	N/R 12 scenarios (2min for each)	HRmean RMSSD PNN50	LF, HF, LF/HF	SD1, SD2	N/A	N/A	-	-
[39] You et al., 2023	Stress, attention	30 (19.8± 0.9) Undergraduates (N/R) Excl: hypertension; heart diseases; medication; any therapy for stress recovery	Experiment (Intervention: virtual biophilic scenes) w/o. professor	Shimmer3 GSR+Unit (Sta) ConsensysPro Done & Reported	N/R	Baseline measured - Baseline (3min) - Scene viewing (3min) - Verbal cognitive (5min) 4 more repeats by scenes	RMSSD	N/A	N/A	Skin conductance, Blood pressure, Attentional restoration	Creativity (GAU)	L3 -Skin conductance -Blood pressure	L4 -Attention, Creativity
[40] Llinares et al., 2021	Attention	160 (23.56 ± 3.43) Undergraduates (N/R) Excl: VR-related issues	Experiment (Intervention: virtual classrooms w. cold/warm color) w/o. professor	b-AlertX10 (Sta) HRVAS Done & Reported	N/R	Baseline measured -Baseline (3min) -Classroom experiment (1.5min) -Psychological attention task (4min) -memory task(4min)	N/A	nLF, nHF	N/A	EEG	Stroop test, Memory task	L3 -EEG	L2 -Stroop (errors) L4 -Stroop (time)
[41] Weber et al., 2024	Stress	60 (22.27 ± 2.13) Undergraduates (Medical) Excl: somatic/mental health problem; heavy smoker (>10 cigarettes/day); heavy alcohol (>1time/week with>6 drinks/occasion) Instr: No alcohol/caffeine (-1h);	Experiment (Virtual Reality Trier Social Stress Test, VR-TSST) w/o. professor	eMotion Faros 180° (CB) HRV-Scanner BioSign Done & Reported	Malik (1996) Laborde et al. (2017)	Baseline measured -Baseline (30min) -Preparation (5min) -Interview(5min) -Math (5min) -Recovery (5min)	RMSSD	LF, HF	N/A	Blood pressure	Self-reported stress (EMA-survey, 0-100 scale); Perceived stress (PSRS)	L2 -Blood pressure L4 -PSRS -Self reported stress	-

Study	Area of Interest	Participants (sample size, age (mean ± SD), school level) / Participant Control	Educational setting & presence of professor/ teacher	HRV measures: HRV device / Software / Preprocessing	HRV measures: Measurement Standards Compliance	HRV measures: Baseline measure / Measuring time	HRV measures: HRV parameters: Time domain	HRV measures: HRV parameters: Frequency domain	HRV measures: HRV parameters: Non-linear domain	Concurrently measured data: Psycho-physiological data	Concurrently measured data: Self-report & performance data	Correlation levels with HRV**: Psycho-physiological & Others	Correlation levels with HRV**: Performance
[42] Gellisch et al., 2022	Stress, Attention	82 (20.15 ± 1.90) Undergraduates (Medical) Excl: chronic/acute mental issues; endocrine disorders; dependence/ abuse of alcohol Instr: No eating, smoking (-1h)	Learning/ Experiment (Intervention: face-to-face vs online Zoom class) w. professor	movisens ECG Move 3 (CB) Kubios Done & Reported	N/R	N/R -Phase1 (30min) -Phase2 (60min) -Phase3 (30mins)	RMSSD, pNN50	LF, HF	N/A	Salivary cortisol	Subject stress (VAS); Achievement Emotions Questionnaire (AEQ)	L1 -Salivary cortisol L3 -VAS L4 -AEQ	-
[43] Tovar et al., 2023	Stress	35 8 physicians (42.4 ± 7.84) 13 residents (29.0 ± 1.87) 14 Undergraduates (Medical) (27.4 ± 4.35) Excl: VR-related issues	Experiment (Intervention: a mass-casualty incident (MCI) simulation using VR) w/o. professor	LabChart (v.8.1.24) (Sta) Prism (v.9.3.0) N/R/A	N/A	Baseline measured - Baseline (2min) - VR1: Non-stressful-Non-medical (2min) - VR2: Stressful-Non-medical -VR3: Trauma resuscitation-Low Grade Trauma -VR4: Trauma Resuscitation – High Stress	RMSSD	N/A	N/A	N/A	STAI	L3 STAI	-
[44] Gellisch et al., 2023	Stress	104 (19.98 ± 1.74) Undergraduates (Medical) Excl: chronic/acute mental illnesses; alcohol/medication; endocrine disorders Instr: No eating, dental hygiene, smoking, drinking (-1h)	Learning /Experiment (face-to-face learning vs. passive online learning vs. interaction-enhanced online learning) w. professor	ECG Move 3 (CB) Kubios Done & Reported	Malik (1996)	Baseline measured A course (120min) -Start of course -60min of course -End of course	RMSSD, pNN50	LF, HF, LF/HF	N/A	Salivary cortisol	Standardized Visual Analog Scales (VAS); Achievement Emotions Questionnaire (AEQ)	L2(RMSSD, pNN50) - salivary cortisol (interactive)	L1(RMSSD, pNN50, LF/HF) - test score (interactive) L4 (LF, HF, LF/HF) -test score (passive)

Study	Area of Interest	Participants (sample size, age (mean ± SD), school level) / Participant Control	Educational setting & presence of professor/ teacher	HRV measures: HRV device / Software / Preprocessing	HRV measures: Measurement Standards Compliance	HRV measures: Baseline measure / Measuring time	HRV measures: HRV parameters: Time domain	HRV measures: HRV parameters: Frequency domain	HRV measures: HRV parameters: Non-linear domain	Concurrently measured data: Psycho-physiological data	Concurrently measured data: Self-report & performance data	Correlation levels with HRV** : Psycho-physiological & Others	Correlation levels with HRV** : Performance
[45] Hsin et al., 2023	Stress	28 (Mean= 24) Undergraduates (Medical) / (N/R)	Experiment (Mini-Clinical Evaluation Exercise 2D vs. 360°) w/o. professor	Holter-like Nexus-4 (Sta) / MATLAB / Done & Reported	Malik (1996)	Baseline measured / -Baseline -Phase1 (5min) -Phase2 (5min)	RR interval	TP, VLF, LF, HF, LF/HF	N/A	N/A	Mental workload (NASA TLX questionnaire); Simulator sickness (SSQ)	L2 (VLF) -SSQ	L3 -Mental workload
[46] Redondo-Florez et al., 2023	Stress	80 (19.12 ± 2.25) Undergraduates (Pharmacy and Biotechnology) / (N/R)	Learning (first chemical laboratory practices) w. professor	Polar H10, (CB) / Kubios / N/R/A	N/A	Baseline measured / 4 Phases -Pre-practice(10min) -Practice1 (1/3) -Practice2 (3/3) -Post-practice(5min)	RMSSD, pNN50, HRmean, HRmax	LF, HF, LF/HF	SD1, SD2	N/A	Stress (SUDS)	L3 -SUDS	-
[47] Balikci et al., 2023	Stress	73 (21.7 ± 2.8) Undergraduates (Medical) / Excl: medications; cardiovascular and psychiatric diseases / Instr: No alcohol (-48h); caffeine/smoke (-2h)	Experiment (TV vs. classical music vs. silence) presence of professor N/R	NeXus-10 (Sta) / Biotrace+ / N/R/A	N/A	Baseline measured / -Baseline (4min) -Anticipation (4min) -Challenge (4min) -Recovery (4min)	SDNN, RMSSD	LF, HF, LF/HF	N/A	BVP, Skin conductance	N/A	L3 (SDNN, RMSSD, HF) L4 (LF, LF/HF) -BVP -Skin conductance	-
[48] Chao et al., 2021	Stress	32 (Median= 24) Undergraduates (Medical) / Excl: pregnancy; hypertension; recent surgery; heart disorders; epilepsy & VR-related issues	Learning / Experiment (360° VR vs. 2D video for learning history-taking & physical examination skills) presence of professor N/R	Holter-like NeXus-4 (Sta) / MATLAB / Done & Reported	Malik (1996)	Baseline measured / -Baseline (5min) -Intervention (5min)	SDNN, RMSSD	LF, HF, LF/HF	N/A	N/A	Milestones (Sleep-disordered breathing (SDB))	-	L3

* Note:
AAS (Adult Attachment Scale);
AEQ (Achievement Emotions Questionnaire);
AMOS 8-15 (Abilità e motivazione allo studio - Ability and Motivation);
BFI-K (Big Five Inventory);
BVP (Blood Volume Pulse);
DASS (Depression, Anxiety and Stress Scale);
EAS-CF (Emotionality Activity Sociability Temperament Survey-Child Form);
EPA (End Product Assessment Rating Scale);
EVEA (Escala de Valoración del Estado de Ánimo, Mood Assessment Scale);
GAU (Guilford's Alternative Uses test);
GSE (The Scale of General Perceived Self-Efficacy);
GVA (Global Vigor and Affect Scale);
JSPE-S (The Jefferson Scale of Physician Empathy: Student version);
KUSTA (Kurz-Skala Stimmung/Aktivierung -short mood/activation stress);
MAAS (Mindful Attention and Awareness Scale);
MBI-HSS (The Maslach Burnout Inventory – Human Service Survey);
MBI-SS (The Maslach Burnout Inventory- Student Survey);
MEQ (Morningness-Eveningness Questionnaire);
NASA-TLX (NASA-Task Load Index);
OTAS (Observational Teamwork Assessment for Surgery);
OSATS (Objective Structured Assessment of Technical Skill);
PANAS (Positive Affect and Negative Affect Scale);
PHQ-9 (Patient Health Questionnaire with 9 item);
PSQ (Perceived Stress Questionnaire);
PSRS (Perceived Stress Reactivity Scale);
PVT (Psychomotor Vigilance Test);
RS 13 (Resilience Scale Short Version with 13-items);
PVM (Paas and Van Merriënboer cognitive load scale);
SAPS-R (Short Revised Almost Perfect Scale);
SASK (German Academic Self-Concept questionnaire);
SDB (Sleep-Disordered Breathing);
SESSKO (Subject-specific Adaptation of the Academic Self-Concept Scales);
SSS (Stanford Sleepiness Scale);
SSQ (Simulator sickness);
STAI (State-Trait Anxiety Inventory);
SUDS (Subjective perception of Distress Strait);
SVF-78 (Stress Verarbeitungs Fragebogen – Stress coping);
TAI (Test Anxiety Inventory);
TICS (Trier Inventory for the Assessment of Chronic Stress);
TNF – α (Tumor Necrosis Factor alpha);
VAS (Visual Analogue Scale);

N/A = Not Applicable;
N/R = Not Reported;
N/R/A = Not Reported but Assumed;

WB=Wristband;
CB=Chest belt;
Sta=Static device;

Excl=Excluded Participants;
Instr=Participant Instruction;

w.=with;
w/o=without

** Note:
L1 = large effect size,
L2 = intermediate and small effect size,
L3 = coherence but no correlation info,
L4 = no effect or not correlated (no effect $r < .05$, small effect $r < .20$, intermediate effect $r < .33$, large effect $r > .37$)

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