

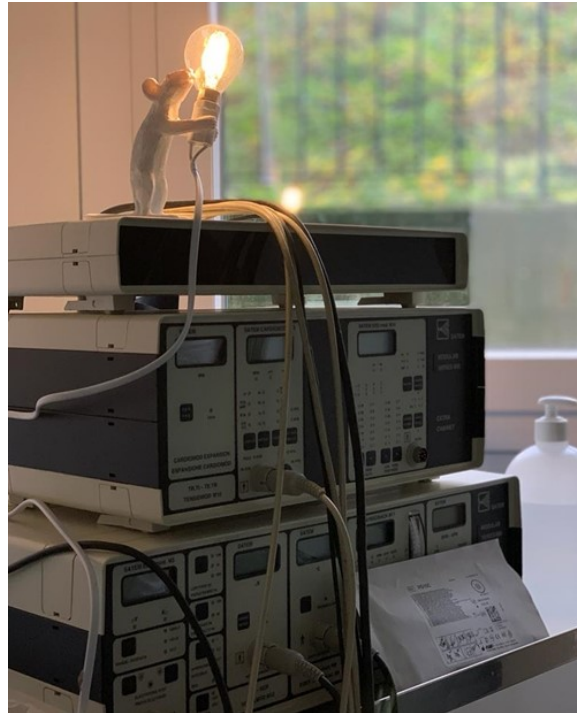



**UNIVERSITÀ
DI PARMA**

DIPARTIMENTO DI MEDICINA E CHIRURGIA

Laboratori di Psicologia Clinica, Psicofisiologia Clinica, Neuropsicologia Clinica

Responsabile Prof. Carlo Pruneti



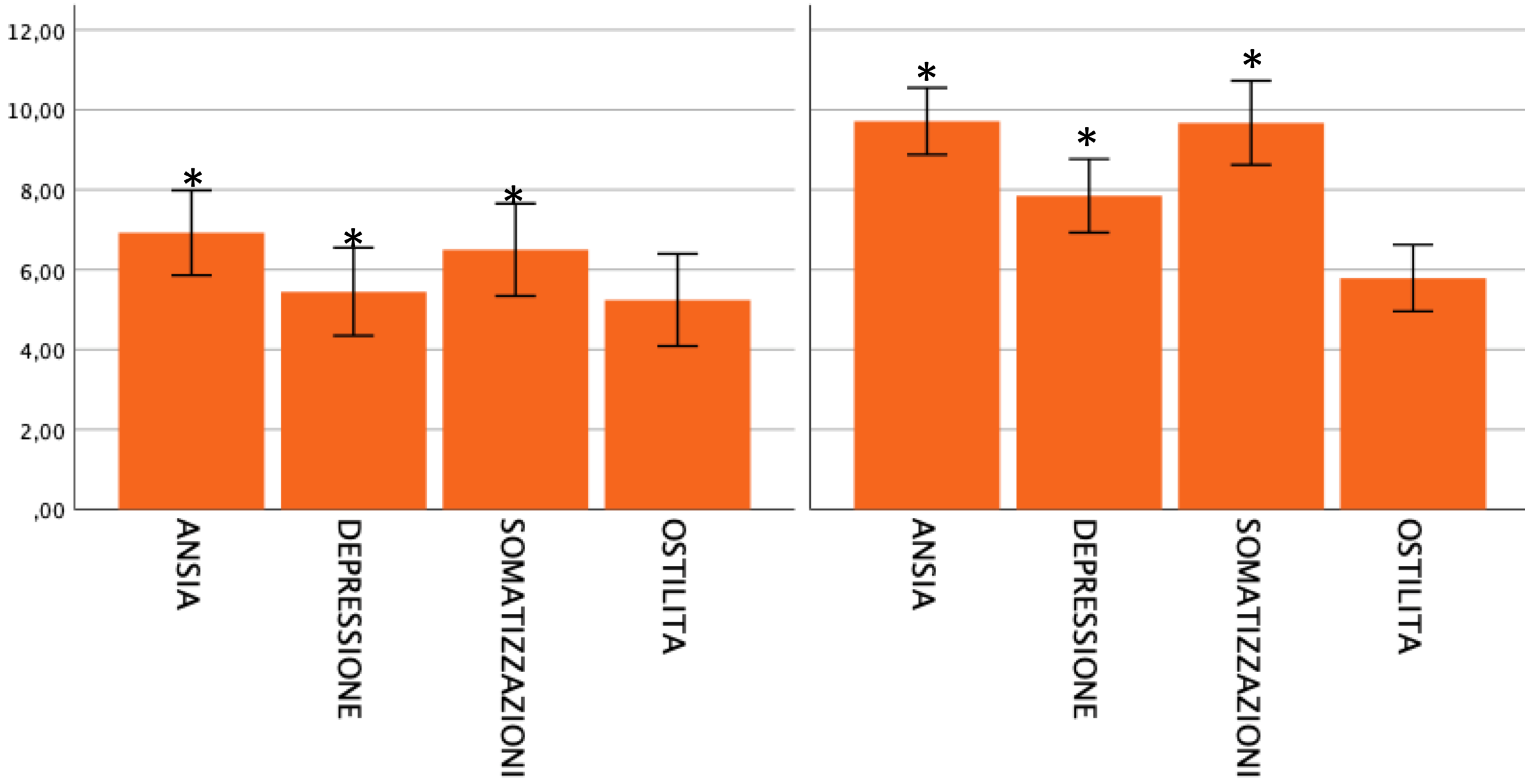


I nostri studi
sulla salute
mentale degli
studenti UNIPR



2019

2022



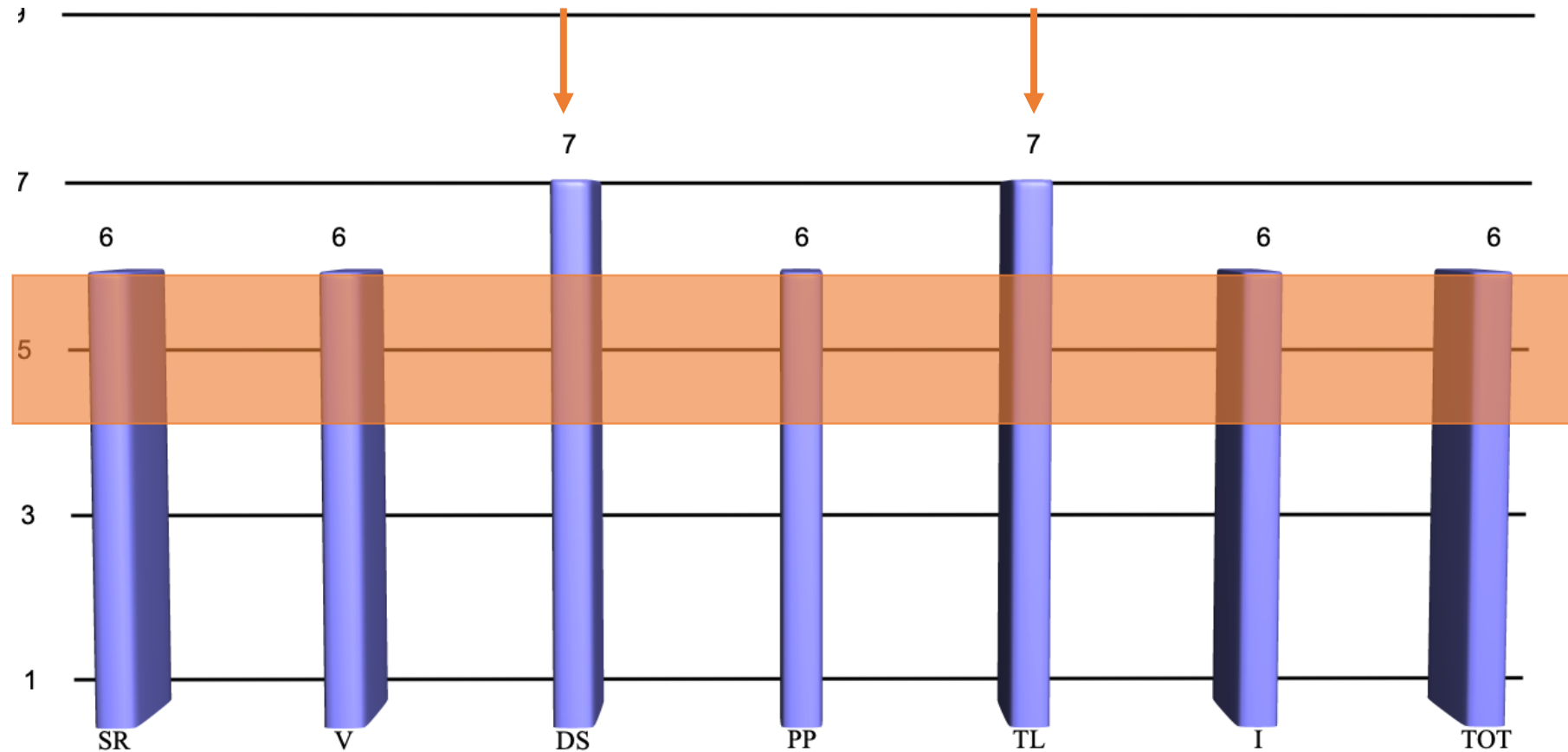
Pisa Stress Questionnaire (PSQ)

DISTURBI DA STRESS (DS)

Problemi, difficoltà e
sintomi usualmente
riferibili a condizioni di
stress

TEMPO LIBERO (TL)

Scarsa capacità di
rilassarsi e "staccare"
dagli impegni



16-Personality Factors Questionnaire (16-PF)

Fattore	Sten	Significato a sinistra (basso)	Punteggio sten									Significato a destra (alto)	
			1	2	3	4	5	6	7	8	9		
A Espansività	4	Riservato, impersonale, distaccato	.	.	.	.	.	.	.	.	.	.	Espansivo, disinvolto, attento agli altri
B Ragionamento	6	Concreto	.	.	.	.	.	.	.	.	.	.	Astratto
C Stabilità emozionale	3	Reattivo, emozionalmente mutevole	.	.	.	.	.	.	.	.	.	.	Emozionalmente stabile, adattabile, maturo
E Dominanza	5	Remissivo, cooperativo, che evita i conflitti	.	.	.	.	.	.	.	.	.	.	Dominante, energico, assertivo
F Vivacità	5	Serio, misurato, accurato	.	.	.	.	.	.	.	.	.	.	Vivace, esuberante, spontaneo
G Coscienziosità	4	Opportunista, non rispetta le regole	.	.	.	.	.	.	.	.	.	.	Coscienzioso, ligio al dovere
H Audacia sociale	4	Timido, pavido, timoroso	.	.	.	.	.	.	.	.	.	.	Socialmente audace, intraprendente, temerario, sfrontato, avventuroso
I Sensibilità	7	Utilitarista, non sentimentale, materialista	.	.	.	.	.	.	.	.	.	.	Sensibile, esteta, sentimentale, romantico
L Vigilanza	7	Fiducioso, non sospettoso, accettante	.	.	.	.	.	.	.	.	.	.	Vigile, sospettoso, scettico, circospetto
M Astrattezza	6	Pratico, aderente alla realtà, realista, orientato alla soluzione	.	.	.	.	.	.	.	.	.	.	Astratto, fantasioso, ideativo, orientato verso le idee
N Prudenza	3	Sincero, schietto, franco, genuino	.	.	.	.	.	.	.	.	.	.	Prudente, discreto, guardingo, chiuso
O Apprensività	6	Sicuro di sé, soddisfatto, tranquillo	.	.	.	.	.	.	.	.	.	.	Apprensivo, insicuro, preoccupato
Q1 Apertura al cambiamento	4	Tradizionalista, conservatore	.	.	.	.	.	.	.	.	.	.	Aperto al cambiamento, sperimentatore
Q2 Fiducia in sé	2	Dipendente dal gruppo, affiliativo	.	.	.	.	.	.	.	.	.	.	Fiducioso di sé, solitario, individualista
Q3 Perfezionismo	3	Tollerante il disordine, approssimativo, flessibile	.	.	.	.	.	.	.	.	.	.	Perfezionista, organizzato, autodisciplinato
Q4 Tensione	8	Rilassato, placido, paziente	.	.	.	.	.	.	.	.	.	.	Teso, energico, impaziente, motivato

Volume 10, n 3, 2022

Clinical Psychology

Impact of Covid-19 on mental health and the role of personality: Preliminary data from a sample of Italian university students

Sara Guidotti^{1}, Gabriella Coscioni², Carlo Pruneti¹*

Abstract

Introduction: The aim of the present study is to describe the stress levels of university students during a new phase of the Covid-19 pandemic (Spring 2022) that is a gradual approach to normality. More specifically, the influence of personality traits able to modulate the distress was investigated. *Materials and Methods:* 120 students from the University of Parma were consecutively recruited. A state tests (Symptom Questionnaire) and two trait tests (P Stress Questionnaire and Cattell's 16-Personality Factors) were administered. A comparison with similar data collected in 2019 was made. Moreover, the regression analyses calculated the amount of variance in psychopathological symptoms (anxiety, depression, somatization, and hostility) explained by the personality traits and the presence of behavior and lifestyles at risk for stress-related disorders.

Results: The scores of the SQ showed psychopathological symptoms above the clinical cut-off for all global clinical scales (anxiety, depression, somatization, and hostility) with values significantly higher than those of the 2019 sample for anxiety, depression, and somatic complaints. The inferential analyses demonstrated that individual factors predicting anxiety are high levels of somatic tension and emotional instability and low levels of openness to change as well as the difficulty in disconnecting from commitments. The inability to relax also predicts somatizations, along with emotional instability, apprehension, and vigilance. Hostile mood is predicted by tension, emotional instability, and openness to change, along with poor warmth. Finally, depression has high tension, low social boldness, and the presence of somatic disorders as predictors.

Conclusion: The Covid-19 pandemic has significantly increased levels of distress among university students. Moreover, specific personality factors were found to significantly predict the psychopathological symptoms. Certain individual traits, such as somatic tension, emotional instability, and reduced openness to change predict both anxiety activation and irritable mood. Other single traits seem to be more specific. Shy and introverted people are more prone to depression while distant and reserved persons tend to approach others with hostility. In conclusion, having the ability to identify individual factors predisposing to psychological distress could help the health professionals in implementing primary and secondary prevention programs.



Comparative Study on Italian and American University Students' Stress and Anxiety

Gabriella Coscioni

Department of Psychology and Neuroscience, Boston College



Introduction

This study examined the contribution of state and environment factors to stress in two university settings.

What is the pattern of relationships among variables tied to student well being?



Aims

1. Explore how American university students' personality traits and school environment contribute to stress levels.
2. Compare American results to results for Italian university students.

Hypotheses

- Specific personality traits and mental health symptoms will predict stress levels.
- Patterns of association among variables will differ between Italian and American post-COVID samples

Method

Study approved by the Boston College IRB.

215 Boston College undergraduate students completed three validated clinical assessments using Qualtrics.

Symptom Questionnaire (SQ, Fava et al., 1983; Kellner, 1976). Internal state during preceding week. Subscales for Anxiety, Depression, Somatic Complaints, Hostility.

Pisa Stress Questionnaire (PSQ, Pruneti, 2011). Trait assessment. Subscales for Sense of Responsibility, Stress Disorders, Precision and Punctuality, Vigor, Spare Time, Hyperactivity.

Cattell's 16 Personality Factors (16 PF, Sirigatti & Stefanile, 2011). Trait assessment. There are 17 subscales for Validity Scale and 16 personality factors seen in Table 4.

American results were compared to those from Italian university students collected pre-COVID in 2019 (N=78, 83.3% female, mean age = 31.05 ± 13.04;) and post-COVID in 2022 (Guidotti et al., 2022).

Table 1. Demographic Descriptives

	Italian (2022)		American	
	N	Mean	N	Mean
Number of Participants	109	-	215	-
Sex	Male	19	96	-
	Female	90	119	-
	18	0	38	-
	19	14	89	-
	20	19	56	-
	21	22	26	-
Age	22	10	21.9	19.4
	23	18	1	-
	24	9	0	-
	25	10	0	-
	26	7	0	-
University Grade	First Year	34	52	-
	Second Year	13	104	-
	Third Year	16	46	-
	Fourth Year	15	13	-
	Fifth Year	23	0	-

Results

Figure 1. SQ Mean Results of Italian Pre-COVID (2019), Italian Post-COVID (2022), and American Post-COVID Samples. Scores above 4 are clinically significant.

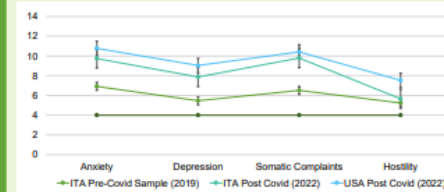


Figure 2. SQ Mean Results of Combined Italian Post-COVID (2022) and American Post-COVID Samples broken down by gender. Scores above 4 are considered clinically significant.



Table 2. Means and SDs from PSQ. Right columns: stanine scores (from 1 to 9), scores 5.4 or ≥ 7 are clinically significant.

	Italian Sample			American Sample		
	Mean	SD	Stanine	Mean	SD	Stanine
Sense of Responsibility (SR)	6.4	3.42	6	4.42	3.15	4
Vigor (V)	2.41	2.51	6	3.84	2.31	7
Stress Disorders (SD)	3.74	1.84	7	3.67	1.75	7
Precision and Punctuality (PP)	4.1	2.01	6	3.95	1.77	6
Spare Time (ST)	2.63	1.97	6	2	1.92	6
Hyperactivity (H)	5.37	1.47	6	5.46	1.43	7
Total	27.73	7.26	6	23.35	5.97	5

Table 4. Means and SDs of sub-scales of the 16-PF factors. Right columns: stanine scores (from 1 to 9), scores 5.4 or ≥ 7 are clinically significant.

	Italian Sample			American Sample		
	Mean	SD	Stanine	Mean	SD	Stanine
Validity Scale (IM)	5.25	2.15	2	5.1	1.9	2
Expansiveness (A)	5.83	2.74	4	5.5	2.29	4
Reasoning (B)	5.13	1.46	6	3.92	1.35	4
Emotional stability (C)	6.47	2.43204	3	5.87	2.16	2
Dominance (E)	5.53	1.89	5	5.37	1.9	4
Vivacity (F)	6.99	2.65	5	6.03	1.98	4
Conscientiousness (G)	7.03	2.09	4	5.33	2.02	2
Social Audacity (H)	5.61	2.24	4	6.52	2.02	1
Sensitivity (I)	6.49	2.16	7	5.57	2.04	6
Vigilance (L)	7.57	2.27	7	6.11	1.94	5
Abstractness (M)	7.71	1.78	6	7.42	1.87	5
Prudence (N)	6.11	2.03	3	6.75	1.79	5
Approachiveness (O)	6.28	1.91	6	6.11	1.82	6
Openness to Change (Q1)	6.13	2.06	4	4.68	2.09	3
Self-confidence (Q2)	6.23	1.91	2	6.27	1.81	2
Perfectionism (Q3)	6.78	2.31	3	6.22	2.07	2
Tension (Q4)	6.19	2.44	8	6.36	2.45	8

Main Findings

- American and post-COVID (2022) Italian samples reported higher levels of anxiety, depression, somatic complaints, and hostility than pre-COVID (2019) Italian sample (Figure 1).
- Means from the SQ (Anxiety, Depression, Somatic Complaints, and Hostility) were above the clinical cut-off of 4 in all samples (Figure 1).
- Female participants from both post-Covid samples scored higher than male participants on SQ subtests except for Hostility (Figure 2).
- American and post-COVID (2022) Italian samples reported clinically significant symptoms of stress on PSQ subtest Stress Disorders (Table 2).
- Regression analysis. Stress Disorders, Sense of Responsibility, Vigor, and Hyperactivity (from the PSQ) were significant predictors for Depression in the post-COVID (2022) Italian sample.
- Regression analysis. Stress Disorders, Sense of Responsibility, Vigor, and Hyperactivity (from PSQ) were significant predictors for all SQ subscales in the American sample.

Future Directions

Explore what reduces or increases stress in college students. This work should highlight both internal variables (e.g., personality traits) and external, environmental variables (e.g., where students attend university).

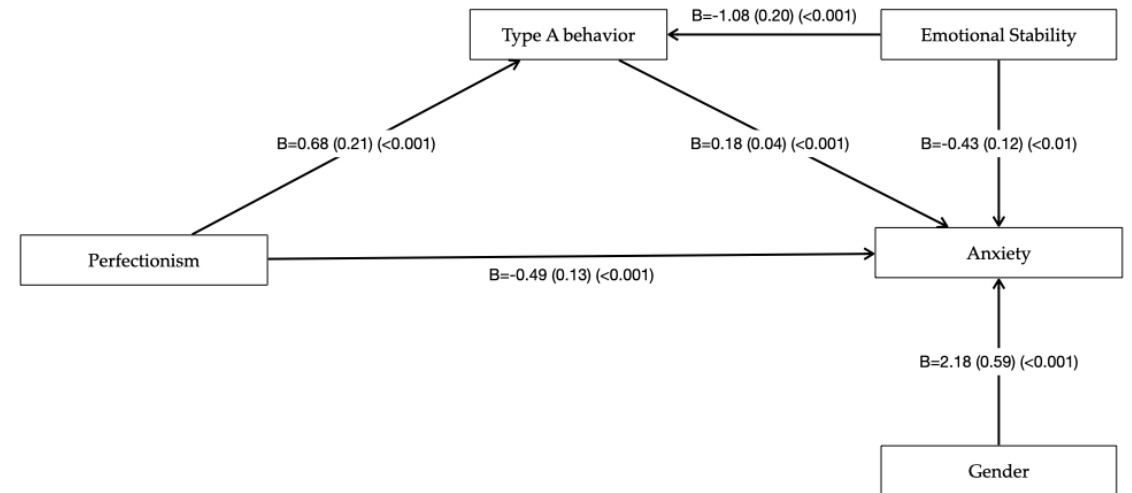
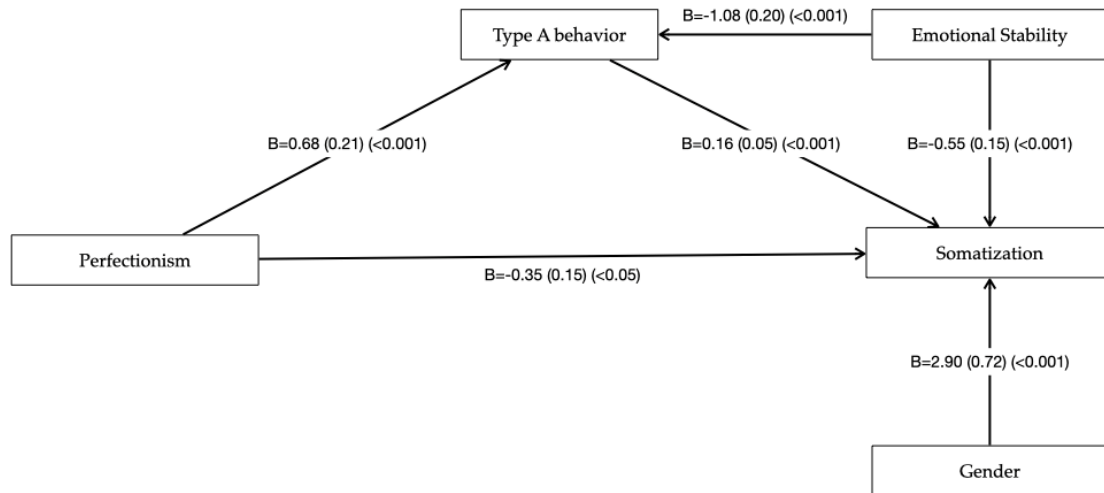
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Acknowledgments

I would like to acknowledge Dr. Hiram Bownell for his support and my Italian collaborators Sara Guidotti and Carlo Pruneti at the Università di Parma.

Guidotti, S., Fiduccia, A., & Pruneti, C. (2024). Giants with Feet of Clay: Perfectionism, Type A Behavior, Emotional Stability, and Gender as Predictors of University Students' Mental Health.





I nostri studi
sullo stile di vita
degli studenti
UNIPR




Circa il 16% degli studenti
presenta un rischio
elevato (>70° p.le) di
**DISTURBI DEL
COMPORTAMENTO
ALIMENTARE**

Di questi, la metà, presenta un
disadattamento psicologico *generale*



Article

Comparison between Physical Activity and Stress-Related Lifestyle between Orthorexic and Non-Orthorexic University Students: A Case–Control Study

Sara Guidotti , Alice Fiduccia , Michele Murgolo and Carlo Pruneti 

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Abstract: (1) Background: The literature regarding orthorexia nervosa (ON) has well documented the association with other mental disorders, such as obsessive–compulsive and eating disorders. However, the research has not taken into account stress-related behavior and the conduction of physical activity (PA), both structured and unstructured. (2) Methods: In this cross-sectional study, 165 students of the University of Parma (92 females and 74 males) aged between 18 and 49 years old (mean = 24.62 ± 4.81) were consecutively recruited. The ORTO-15 questionnaire was used to divide the total sample into a group without orthorexia (score > 40) and a group with orthorexia (score < 40). All subjects completed the P Stress Questionnaire, and specific items were extrapolated from the Eating Habits Structured Interview (EHSI) to investigate lifestyle, including structured and unstructured PA. (3) Results: **Subjects with orthorexia represented 83% of the total sample and reported higher levels of stress-related risk behaviors (i.e., sense of responsibility ($t = -1.99, p = 0.02$), precision ($t = -1.99, p = 0.03$), stress disorders ($t = -1.38, p = 0.05$), reduced spare time ($t = -1.97, p = 0.03$), and hyperactivity ($t = -1.68, p = 0.04$)) and a higher frequency of PA (i.e., hours spent training in structured PA, daily ($t = -1.68, p = 0.05$), weekly ($t = -1.91, p = 0.03$), and monthly ($t = -1.91, p = 0.03$), the tendency to carry out physical exercise even if tired ($t = -1.97, p = 0.02$), and to adhere to unstructured PA (i.e., moving on foot or by bike rather than using transport ($t = 1.27, p = 0.04$)).** (4) Conclusions: The results confirmed the presence of hyperactivity at a motor and behavioral level in people with orthorexia. Further studies are necessary to highlight the causality between ON, stress, and physical activity but it may be possible to hypothesize that “obsessive” physical exercise may not generate the benefits generally known by the literature.

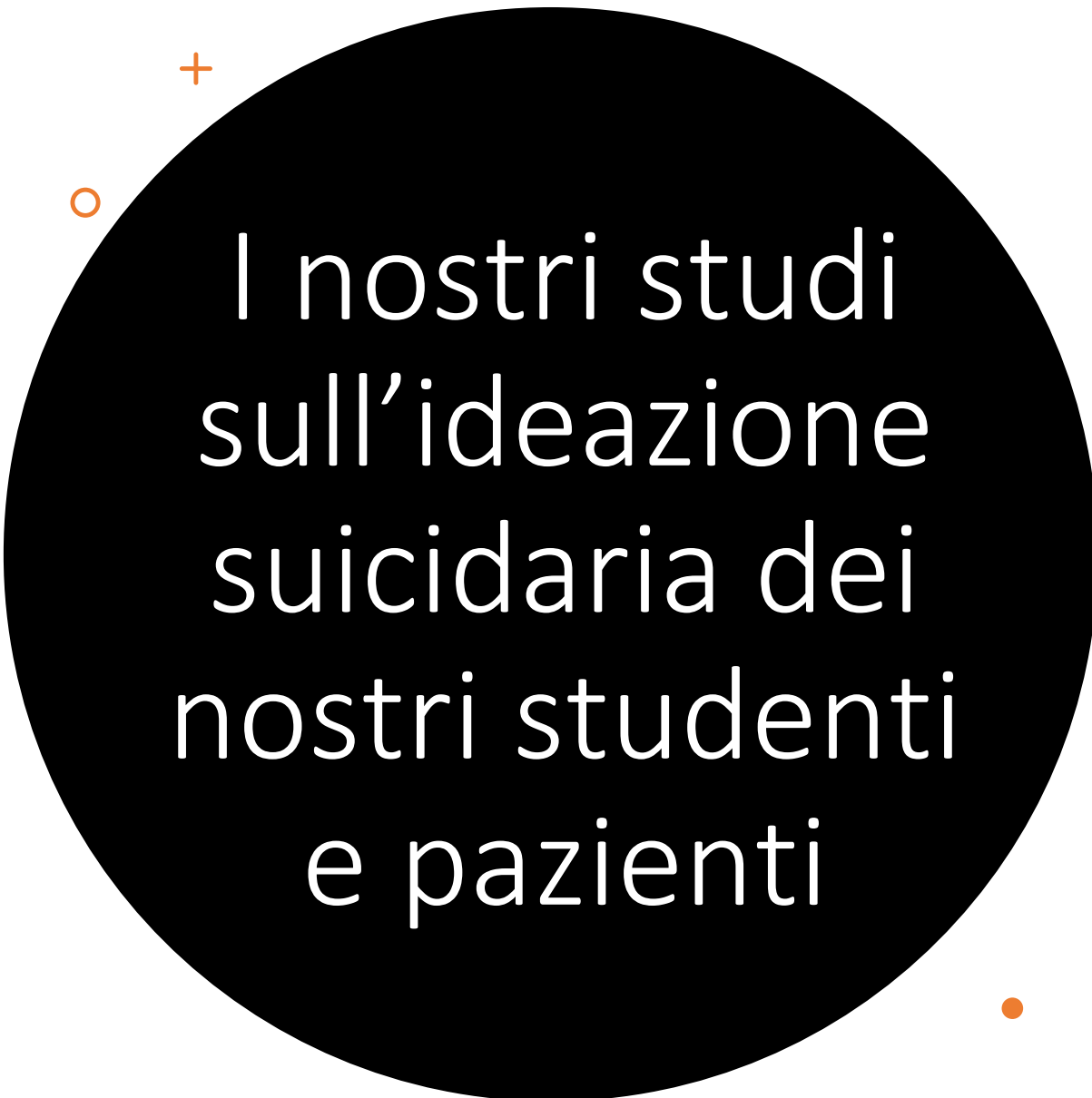
Keywords: orthorexia; eating disorders; obsessive–compulsive disorders; lifestyle; physical exercise; physical activity; university students; mental health; stress; somatizations



Citation: Guidotti, S.; Fiduccia, A.; Murgolo, M.; Pruneti, C. Comparison between Physical Activity and Stress-Related Lifestyle between Orthorexic and Non-Orthorexic University Students: A Case–Control Study. *Nutrients* **2024**, *16*, 1340. <https://doi.org/10.3390/nu16091340>

Table 2. Comparisons of behavioral characteristics between the non-orthorexic and the orthorexic groups.

	ORTO-15 Score > 40		ORTO-15 Score < 40		Total Sample (<i>n</i> = 166)		<i>t</i> (165)	<i>p</i>	Cohen's <i>D</i>
	M	SD	M	SD	M	SD			
P Stress Questionnaire									
Sense of responsibility	5.18	3.07	6.54	3.34	6.31	3.33	−1.99	0.02	−0.42
Vigor	2.68	2.47	3.28	2.34	3.18	2.36	−1.24	0.11	−0.26
Stress disorder	2.96	1.68	3.35	1.66	3.28	1.70	−1.38	0.05	−0.29
Precision and punctuality	3.53	1.74	4.32	1.98	3.66	1.96	1.99	0.03	0.41
Spare time	1.25	1.65	2.04	2.00	1.91	1.96	−1.97	0.03	−0.41
Hyperactivity	4.75	1.80	5.28	1.48	5.19	1.54	−1.68	0.04	−0.35
Total	23.59	6.90	27.18	6.68	26.44	7.55	−2.53	0.005	−0.58



I nostri studi
sull'ideazione
suicidaria dei
nostri studenti
e pazienti



Introversion, Alexithymia, and Hostility: A Path Analysis From Personality to Suicidal Ideation Among University Students

Psychological Reports
2024, Vol. 0(0) 1–22
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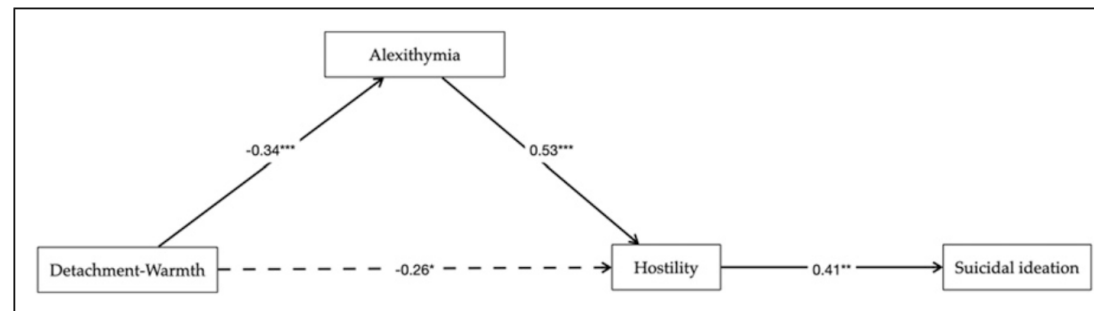


Figure 1. Alexithymia fully mediated the relationship between low Warmth and Hostility (β, p), which, in turn, predicted Suicidal Ideation (Exp(B), p). Legend: * = $p < .05$, ** = $p < .01$, *** = $p < .001$.

Looking at the anamnestic information, it emerged that only 16.76% of the students had undergone psychological treatment in the past and only 12.43% of them had undergone psychotherapy. Only one person reported a history of psychiatric hospitalization. Taking into account the self-reported severity, 28.2%, 16.7%, and 2.6% of the sample considered their problems to be mild, moderate, and serious, respectively. Furthermore, only 9 people (13.4%) were already under the care of a mental health specialist among the 81.7% of students willing to undergo psychological treatment. Lastly, 15.1% affirmative answers were found to the question investigating suicidal ideation.

MISURAZIONE CONDIZIONI DI IPERATTIVAZIONE ANSIOSA

VALUTAZIONE PSICOFISIOLOGICA

Elettromiogramma di Superficie (sEMG)



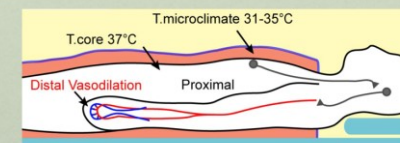
Conduttanza cutanea (SCL-SCR)



Battito Cardiaco (HR/IBI/HRV)



Temperatura periferica (TH)



Electrodermal Activity Moderates the Relationship Between Depression and Suicidal Ideation in a Group of Patients with Anxiety and Depressive Symptoms

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INTRODUCTION

Suicide occurs in individuals who have at least one mental disorder in 95% of cases (American Psychiatric Association [APA], 2022), and the Covid-19 pandemic has dramatically exacerbated experiences of mental distress, increasing the prevalence of mental disorders such as anxiety and depression. Being suicide a serious global issue, the World Health Organization (WHO) is constantly prioritizing the identification of the involved factors.

In our study, it was hypothesized that autonomic hyperactivation might have a moderating role in the relationship between symptoms of depression and suicidal ideation in a group of subjects suffering from Mixed Anxiety Depressive Disorder (MADD).



METHODS

This cross-sectional study (prot. n. 254676/2023) enrolled 53 persons suffering from MADD. The diagnosis was established by assessing the patients with the Structured Clinical Interview for DSM-5 Disorders (First et al., 2017).

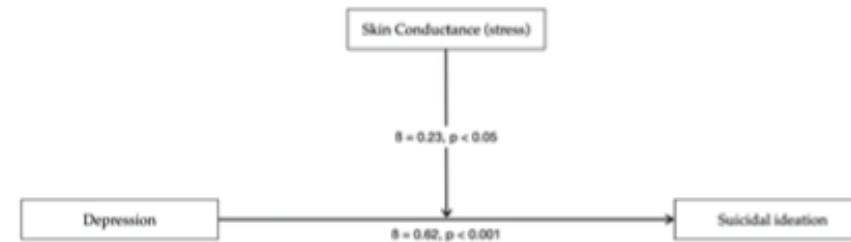
The symptoms of depression and anxiety were assessed through the Symptom Questionnaire (SQ; Fava et al., 1983) while specific items derived from the Symptom Checklist-90-Revised (SCL-90 -R; Prunas et al., 2012) were used to measure suicidal ideation.

Additionally, a Psychophysiological Stress Profile (PSP; Fuller, 1979) was conducted. Electrodermal Activity, or Skin Conductance, was continuously registered in the following steps (5 min each, a total of 15 min): (1) baseline phase; (2) stress phase (the Mental Arithmetic Task [MAT] was presented); and (3) recovery phase.

RESULTS



Depression was a significant predictor of Suicidal Ideation [$B=0.27$; $SE=0.05$; $p<0.001$; LLCI-ULCI (0.17, 0.37)], explaining 37% of the variance ($F=20.91$; $p<0.001$). Additionally, the baseline value of the Skin Conductance [$B=0.92$; $SE=0.20$; $p<0.001$; LLCI-ULCI (0.51, 1.33)] exerted a significant moderation effect on the relationship between Depression and Suicidal Ideation, explaining 19.1% more of the variance than linear regression alone ($F=20.91$; $p<0.001$). The final model including gender [$B=-0.76$; $SE=0.44$; $p=n.s.$; LLCI-ULCI (-1.64, 0.13)] and age [$B=-0.01$; $SE=0.02$; $p=n.s.$; LLCI-ULCI (-0.04, 0.04)] as covariates explained 58.87% of the variance ($F=13.45$; $p<0.001$).



Skin Conductance value recorded under induced stress [$B=0.41$; $SE=0.20$; $p<0.05$; LLCI-ULCI (0.01, 0.81)] exerted a significant moderator effect on the predicting role of Depression on Suicidal Ideation [$B=0.27$; $SE=0.05$; $p<0.001$; LLCI-ULCI (0.17, 0.37)], explaining the 6% of variance more ($F=18.96$; $p<0.001$). Gender [$B=-0.32$; $SE=0.51$; $p=n.s.$; LLCI-ULCI (-1.36, 0.71)] and age [$B=-0.01$; $SE=0.02$; $p=n.s.$; LLCI-ULCI (-0.04, 0.05)] were not significant predictors included as covariates. The final model explained 44.75% of the variance ($F=7.61$; $p<0.001$).



22nd Meeting
April 8-13, 2024
Ljubljana, Slovenia



Electrodermal Activity Moderates the Relationship Between Depression and Suicidal Ideation in a Group of Patients with Anxiety and Depressive Symptoms

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Ph.D Student in Clinical Psychophysiology*

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Research Paper

Electrodermal activity moderates the relationship between depression and suicidal ideation in a group of patients with anxiety and depressive symptoms



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ARTICLE INFO

Keywords:

Anxiety
Depression
Hostility
Skin conductance
Suicidal ideation

ABSTRACT

Purpose: Being suicide a serious global issue, it's urgent to identify the involved factors and possibly precursors. In our study, it was hypothesized that autonomic hyperactivation might have a moderating role in the relationship between symptoms of depression and suicidal ideation in a group of patients suffering from Mixed Anxiety Depressive Disorder (MADD).

Methods: Fifty-three outpatients diagnosed with MADD were consecutively recruited. Anxiety and depression levels were assessed through the Symptom Questionnaire whereas suicidal ideation was calculated through specific items extrapolated from the Symptom Checklist-90-R (SCL-90-R). Additionally, Electrodermal Activity (EDA) and the evaluation of Skin Conductance, Level and Response (SCL-SCR), was detected through the recording of a Psychophysiological Stress Profile (PSP).

Results: The analyses confirmed depression as the first predictor of suicidal thoughts. Nonetheless, EDA levels recorded at baseline and under induced stress exerted a moderating effect on the relationship between thymic deflection and thoughts of death.

Conclusions: Even though activation is usually considered a positive factor for clinical prognosis, our findings highlight that autonomic arousal may represent a harmful resource for patients suffering from MADD. The involvement of the psychophysiological axis can accentuate mental suffering and favor suicidal ideation. The need to consider a multidimensional assessment strongly emerged.

+

o

I nostri studi sulle cefalee

In collaborazione con la Neurologia
dell'AOU di Parma e dell'AUSL di Piacenza

o



Original Article

Mediation Analysis of Anxiety and Depression Between Alexithymia and Frequency of Headache Attacks and Impact on Suicidal Ideation in a Sample of Patients With Primary Headache

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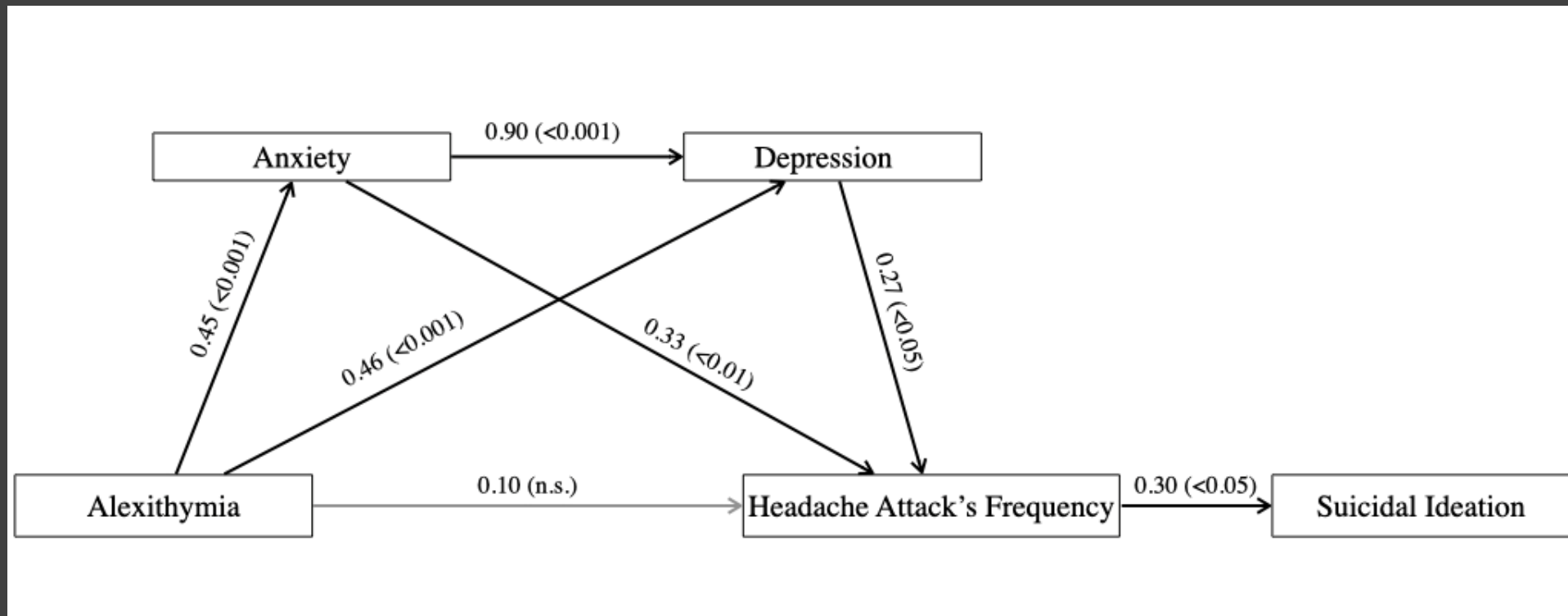
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Abstract: (1) *Background:* Considering the constellation of psychopathological symptoms that characterize primary headaches, the present study aimed to describe the relationship between specific psychopathological symptoms (i.e., anxiety, depression, and suicidal ideation), and psychological variables, such as alexithymia, and their impact on headache frequency. (2) *Methods:* Socio-demographic data (gender, age, occupation, marital status, and educational level) and psychological variables (alexithymia, anxiety, depression, and suicidal ideation) of 70 headache patients (33 with migraine, 23 with tension-type headache, and 14 with mixed tension migraine) were compared to those of 62 age-matched control subjects. First, the patients underwent a neurological examination to make the diagnosis and define the frequency of headache attacks in a month. Consequently, all participants completed the Toronto Alexithymia Scale-20, the Symptom Questionnaire, and the Symptom Checklist 90-Revised. (3) *Results:* Headache patients reported significantly higher levels of alexithymia, anxiety, depression, and suicidal ideation compared to controls. The mediation analysis, conducted within the patient group alone, proved that anxiety and depression fully mediated the relationship between alexithymia and monthly headache frequency, even controlling for gender and age. Additionally, the frequency of headache attacks predicted suicidal ideation. (4) *Conclusions:* Our results highlight the importance of conducting a psychological evaluation in headache patients because some factors can increase the clinical manifestations of the disease.

Citation: Guidotti, S.; Torelli, P.; Ambiveri, G.; Fiduccia, A.; Pruneti, C. Mediation Analysis of Anxiety and Depression Between Alexithymia and Frequency of Headache Attacks and Impact on Suicidal Ideation in a Sample of Patients With Primary Headache. *Eur. J. Investig. Health Psychol. Educ.* **2024**, *14*, x. <https://doi.org/10.3390/xxxx>
Academic Editor: XXX
Received: date
Accepted: date
Published: date

Mediation Analysis of Anxiety and Depression Between Alexithymia and Frequency of Headache Attacks and Impact on Suicidal Ideation in a Sample of Patients With Primary Headache



From the Latin “Re-Cordis, Passing Through the Heart”: Autonomic Modulation Differentiates Migraineurs from Controls when Recounting a Significant Life Event

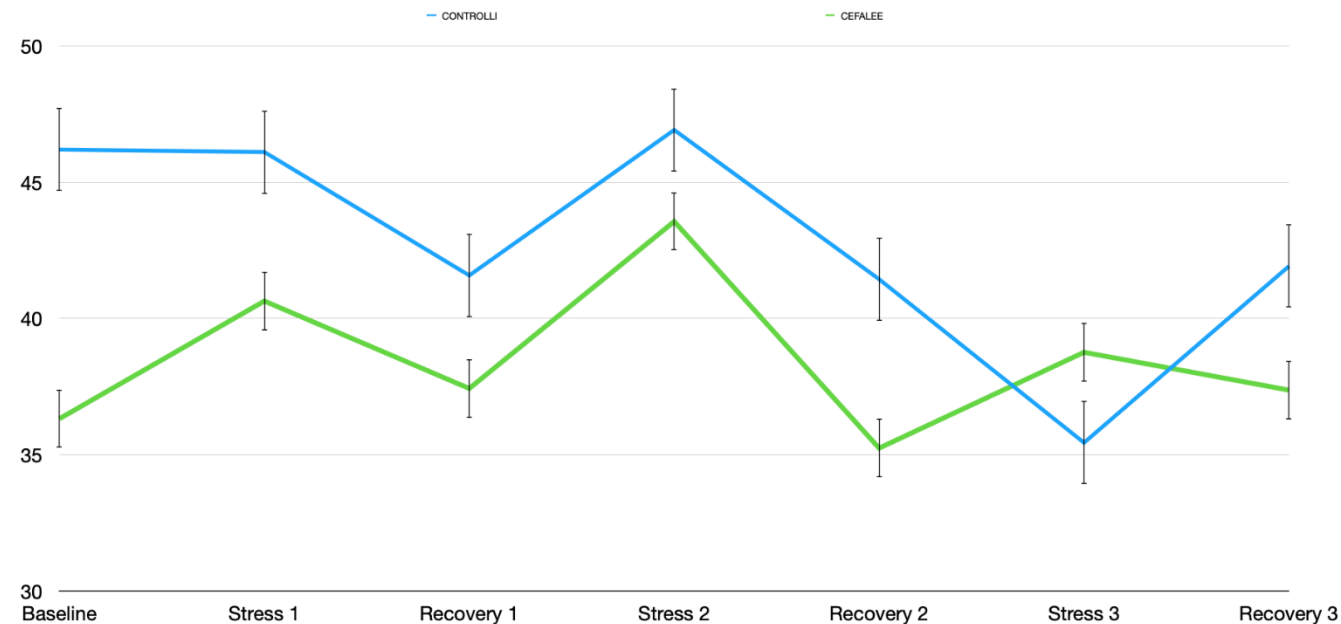
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I nostri studi su
altre sindromi
organiche





Article

Increased Psychological Symptoms and Autonomic Arousal in Patients with Subclinical Hypothyroidism: A Case–Control Study

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Abstract: (1) Background: Subclinical hypothyroidism (SHT) is a condition that has been a subject of controversy in the literature due to its association with psychological and psychiatric symptoms as well as autonomic imbalances. To gain a better understanding of the effects of SHT on patients, a research study has been undertaken to investigate the presence of psychological symptoms and autonomic imbalances in a group of individuals diagnosed with SHT. (2) Methods: In this case–control study, 50 patients diagnosed with SHT who accessed the Department of Endocrinology of the University of Pisa were consecutively recruited. Psychological symptoms were measured through the Crown–Crisp Experiential Index (CCEI), whereas autonomic imbalance was described using the Psychophysiological Stress Profile (PSP), with simultaneous recording of the following psychophysiological parameters: Surface Electromyogram (sEMG), Skin Conductance Level (SCL), heart rate (HR), and peripheral temperature (PT). The patients' values were compared to those of 50 healthy control subjects. (3) Results: The comparison between groups highlighted significant differences in the CCEI and PSP. In particular, patients reported higher rates of psychological symptoms (anxiety, depression, somatic complaints, and hysteria behavior). Significantly higher levels of autonomic arousal were also recorded. More specifically, the sEMG, SCL, HR, and PT values were different between the two groups. (4) Conclusions: The study has confirmed the presence of autonomic hyperarousal in patients diagnosed with subclinical hypothyroidism. This is likely due to the body's attempt to compensate for a general lack of energy by accelerating the autonomic activity. The findings also underline the significance of a comprehensive assessment approach that takes into account various dimensions such as psychological and psychophysical well-being. Such an approach helps in evaluating the impact of subclinical diseases on overall health and well-being.



Citation: Guidotti, S.; Innocenti, A.; Cosentino, C.; Monzani, F.; Guccini, I.; Pruneti, C. Increased Psychological Symptoms and Autonomic Arousal in Patients with Subclinical Hypothyroidism: A Case–Control Study. *Endocrines* **2024**, *5*, 186–196. <https://doi.org/10.3390/endocrines5020013>

Academic Editor: Antonio Brunetti

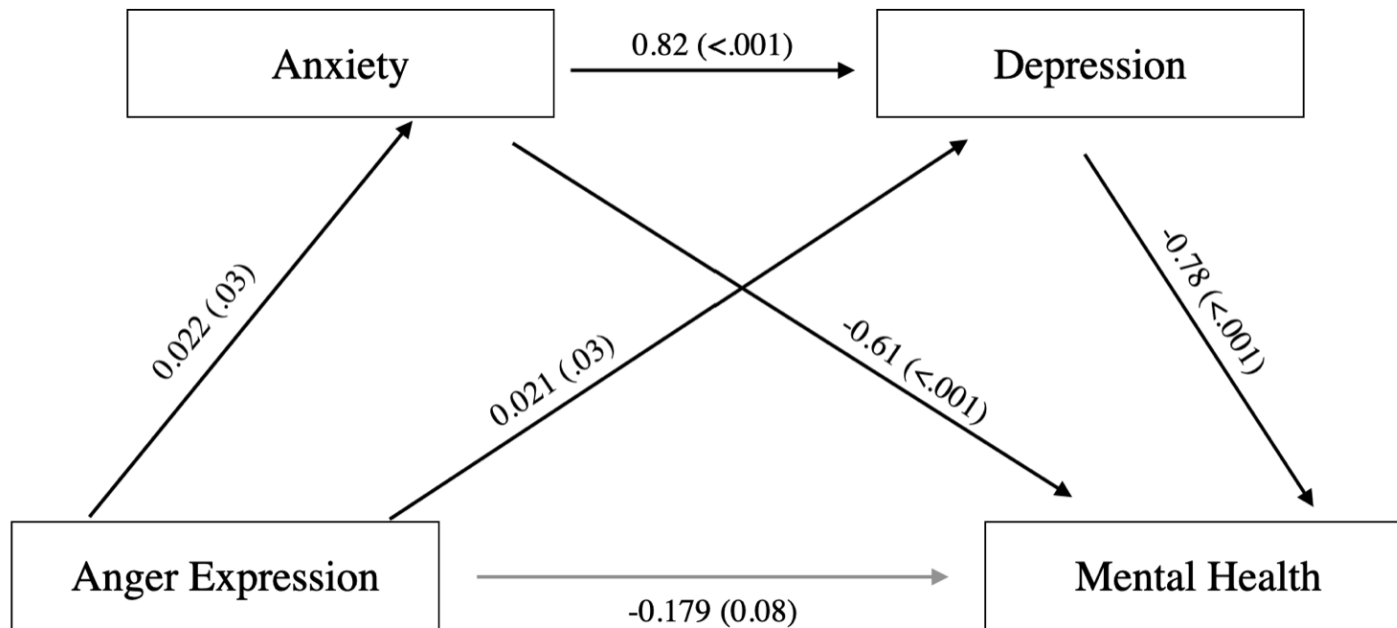
Keywords: subclinical hypothyroidism; psychophysiology; arousal; anxiety; depression

Anxiety and Depression Fully Mediate the Relationship between Anger Expression and Quality of Life in a Sample of Hypertensive Patients

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dal comportamentismo al cognitivismo andata e ritorno

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VALUTAZIONE NEUROVEGETATIVA E SUE APPLICAZIONI NELLE SINDROMI ORGANICHE: L'ESEMPIO DELL'ATTIVAZIONE PSICOFISIOLOGICA CONSEQUENTE A IPOTIROIDISMO SUB-CLINICO

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Biofeedback del Pavimento Pelvico



Carlo Pruneti e Sara Guidotti

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o

I nostri studi
sullo stress
lavoro-correlato

o



Top-Level Managers' Psychophysical Recovery Investigated Through Different Psychophysiological Parameters Benefits From Training Based on Muscle Relaxation and Self-monitoring of HRV-Biofeedback

Carlo Pruneti, Alice Fiduccia, and Sara Guidotti*

Clinical Psychology, Clinical Psychophysiology, and Clinical Neuropsychology Labs, Dept of Medicine and Surgery, University of Parma, Italy

Abstract

Objective. The present study aimed to verify whether training based on progressive muscle relaxation (PMR) and self-monitoring of heart rate variability biofeedback (HRV-BFB) could lead to a significant reduction of psychophysical stress among top-level managers, measured on different physiological parameters related to the stress response. **Methods.** Thirty-four top-level managers, after completing the Symptom Questionnaire (SQ), were subjected to a psychophysiological stress profile (PSP) to describe the psychophysiological activation (Skin Conductance, surface Electromyography, Heart Rate, and Peripheral Temperature were registered in three phases: baseline, stress, and recovery). Following the intervention with PMR and HRV-BFB, SQ and PSP were readministered. **Results.** A condition of psychophysical stress was detected through SQ and PSP in the total sample at T0. The intervention allowed participants to reduce their psychological symptoms. Furthermore, muscular tension and skin conductance levels were significantly lower in the recovery phase of the PSP administered at T1. Additionally, a reduction in the reactivity to stress was observed in the HR value postintervention. **Conclusion.** Combining PMR and HRV-BFB therapy can reduce distress symptoms and improve responses to stress. It's cost-effective and offers many benefits, making it a widely recommended intervention.

Keywords: top-level managers; stress response; progressive muscle relaxation; heart rate variability; biofeedback

Citation: Pruneti, C., Fiduccia, A., & Guidotti, S. (2024). Top-level managers' psychophysical recovery investigated through different psychophysiological parameters benefits from training based on muscle relaxation and self-monitoring of HRV-biofeedback. *NeuroRegulation*, 11(1), 43–52. <https://doi.org/10.15540/nr.11.1.43>



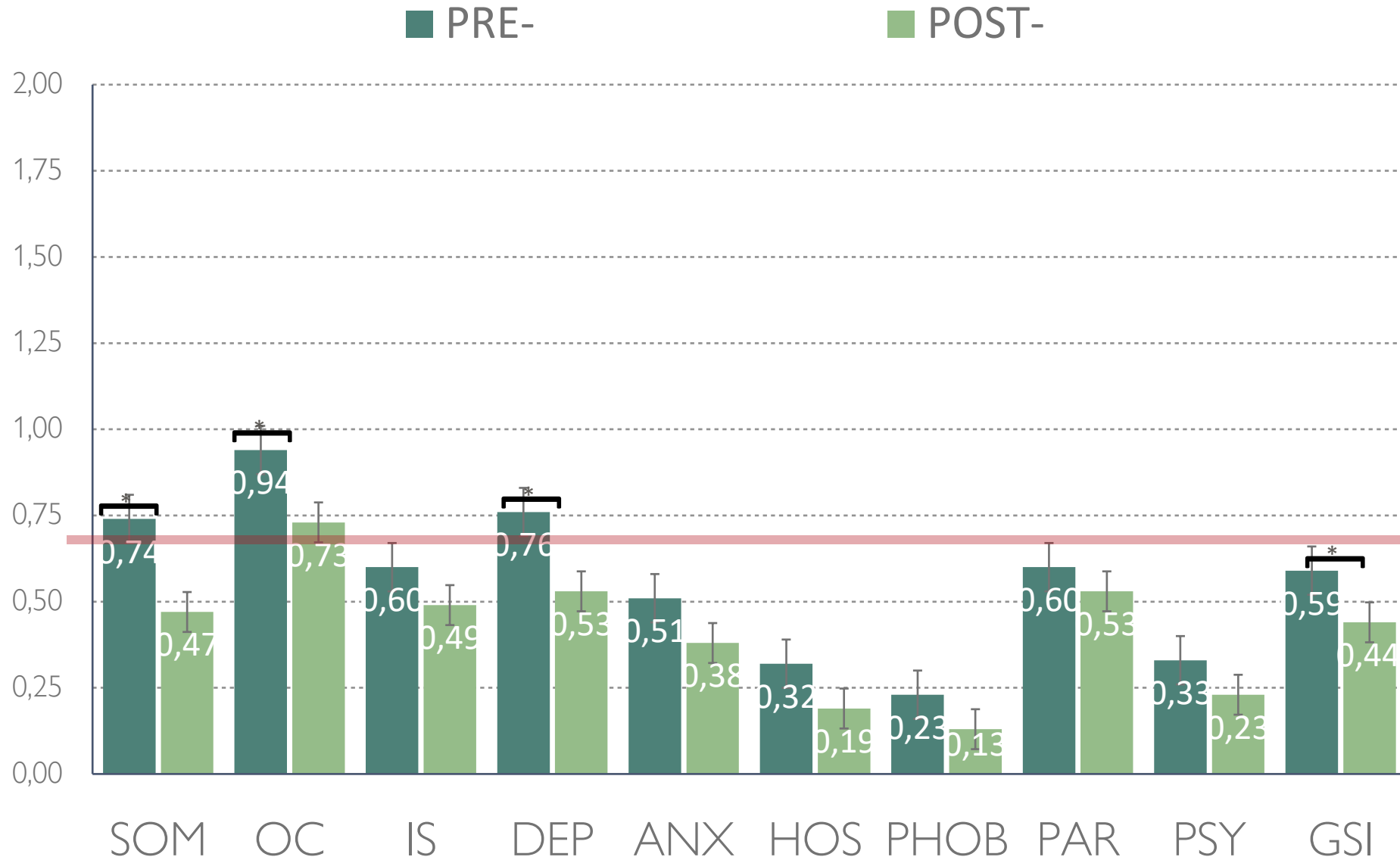
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DIPARTIMENTO DI MEDICINA E CHIRURGIA

Valutazione multidimensionale dello stress lavoro-correlato dei dipendenti dell'Ospedale Privato Accreditato di Medicina Fisica e Riabilitativa San Giacomo di Ponte dell'Olio (PC) e proposta di intervento di gestione dello stress mediante Heart Rate Variability Biofeedback Training (HRV-BFB)

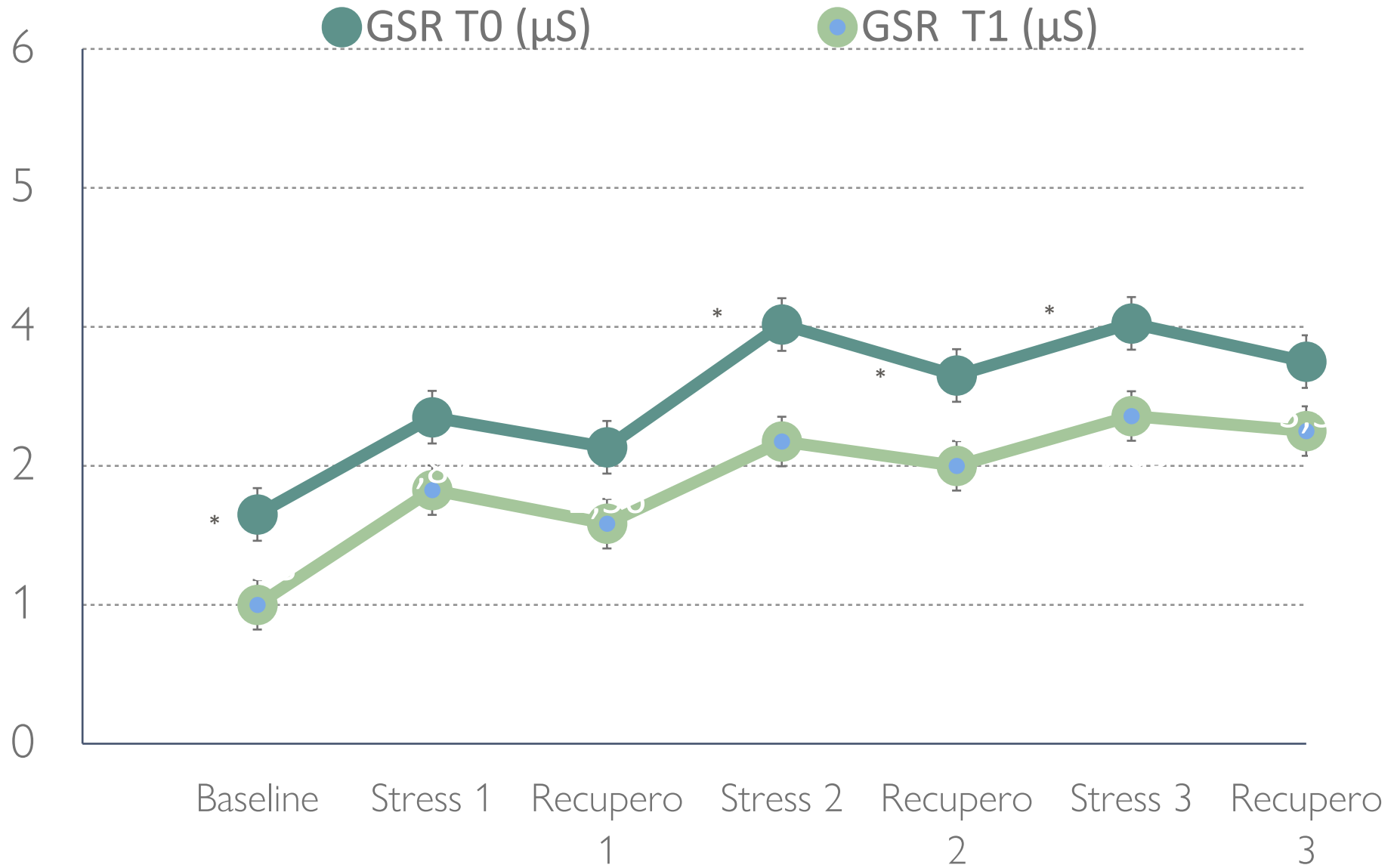
Dati preliminari raccolti nel periodo Dicembre 2022-Settembre 2023

Symptom Checklist 90 Revised



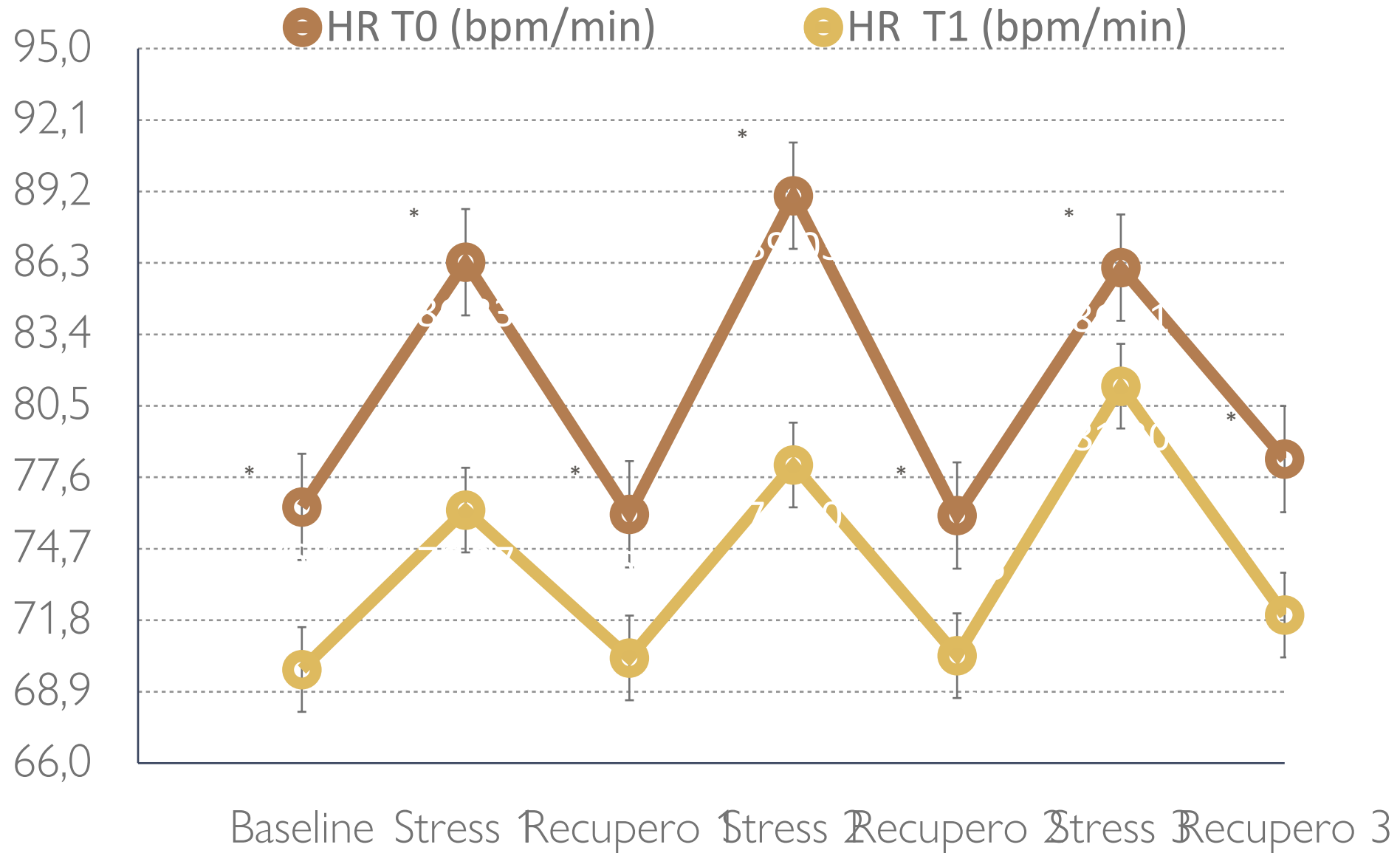
Dati preliminari

Valutazione psicofisiologica



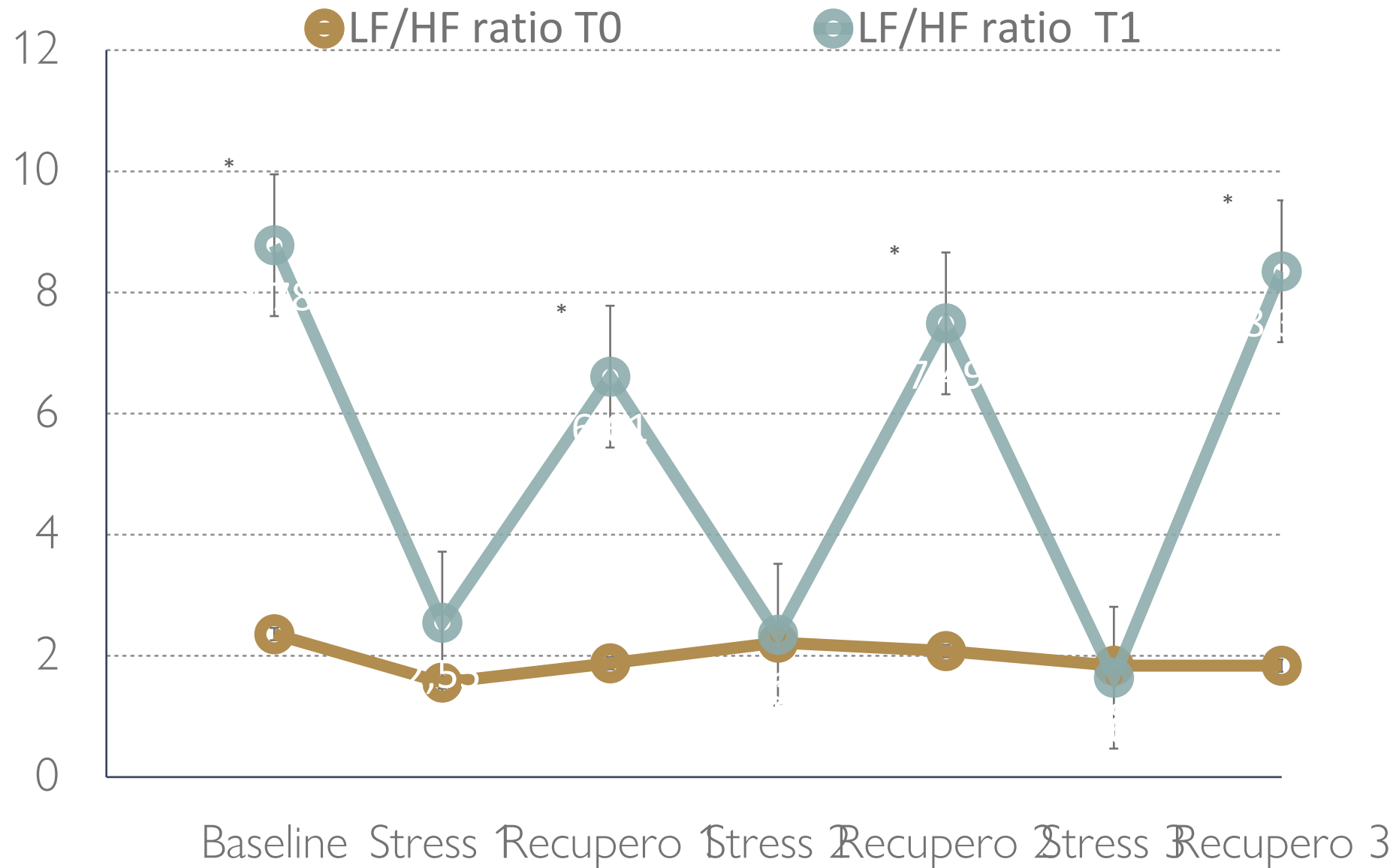
Dati preliminari

Valutazione psicofisiologica



Dati preliminari

Valutazione psicofisiologica





CONSTITUTIONALLY MORE RESILIENT HEALTHCARE WORKERS ACHIEVED GREATER BENEFITS FROM A 10-SESSION HEART RATE VARIABILITY BIOFEEDBACK PROGRAM FOR POST-COVID-19 STRESS MANAGEMENT: A PILOT STUDY



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INTRODUCTION

The COVID-19 pandemic led to a notable rise in mental health disorders, which can exacerbate existing risk factors. Consequently, the well-being of healthcare workers emerged as a crucial public concern (Brinkmann et al., 2020). This study aims to evaluate specific psychological factors that may increase distress and hinder the effectiveness of Heart Rate Variability-Biofeedback (HRVB).

More specifically, given that resilience promotes psychophysical recovery following stressful life events, it was hypothesized that people with personality traits linked to resilience could benefit from HRVB to a significantly greater extent than more emotionally immature people.

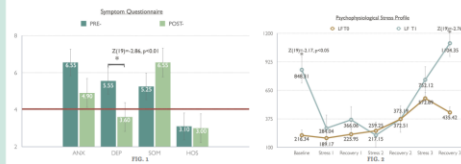


MATERIALS AND METHODS

A group of 20 employees (doctors, nurses, healthcare technicians, etc.) (16 females and 4 males, average age = 49.33 ± 13.06) of the San Giacomo Physical Medicine and Rehabilitation Hospital of Ponte dell'Olio (Piacenza - Northern Italy) were recruited in the period between December 2022 and September 2023. Preliminarily, a multidimensional assessment was conducted to detect psychological symptoms of distress (through the Symptom Questionnaire, SQ), evaluate the autonomic imbalance (through the Psychophysiological Stress Profile, PSP), and describe the personality traits associated with resilience (through Cattell's 16-Personality Factors Questionnaire, 16PF). More specifically, the SQ and the PSP were administered before (T0) and after the HRVB intervention (T3). At the same time, the 16PF was used to analyze the benefits of HRVB between groups (higher C factor or C+ vs. lower C factor or C-). Participants were subjected to 10 sessions of HRVB through the emWave Pro Plus (HeartMath Institute, Boulder Creek, California, USA), implementing Optimal Respiratory Frequency and Emotional Visualizer exercises (Lalanza et al., 2023). The Cardiac Coherence and Achievement Scores (the cumulative value of the Cardiac Coherence score) were collected at the first (T1) and last sessions (T2).

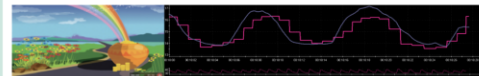
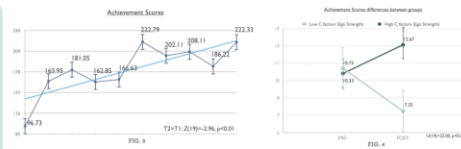
RESULTS

Although the Wilcoxon signed ranking test highlighted benefits in the depression scale measured through the SQ (Fig. 1), in the band of HRV LF frequencies recorded during the PSP (Fig. 2), and the Achievement Scores (Fig. 3) recorded during the first (T1) and the last (T2) session of HRVB on the entire sample, interesting data were found by dividing the sample between C- (low score on Factor C) and C+ (high score on Factor C) (Fig. 4).



DISCUSSION

The data confirmed the effectiveness of HRVB in improving psychological symptoms (i.e., depression) and autonomic imbalance (i.e., HRV LF frequencies and Achievement Scores) on the total sample. Dividing the sample based on the 16PF factor C score revealed interesting findings. Specifically, the between-group analysis (C- vs. C+) highlighted that Ego Strength (or Resilience) can amplify or hinder the benefits of HRVB. In other words, constitutionally more resilient people may benefit more from HRVB programs, having better emotion regulation skills.



Our findings are in line with Freud's Ego Theory, which describes the ego as a set of cognitive and perceptual functions that serve adaptive purposes (Hartmann, 1958). The ego, in this role, acts as an evolutionarily shaped role model that functions to overcome the obstacles that human beings inevitably encounter as they attempt to sustain their lives and satisfy their needs. Since the human personality arises from the pressure of innate drives to seek satisfaction, the ego is a problem-solving structure that serves to mediate between needs and the environment and represents resilience to events that disturb its balance.

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PROSPETTIVE FUTURE – STRESS LESS

Il nostro obiettivo è quello di implementare, all'interno di un progetto Dottorale innovativo cofinanziato dal PNRR, una **app** per la valutazione ed il management dello stress lavoro correlato, frutto di una **proficua collaborazione** multidisciplinare tra:

- i nostri Laboratori
- gli Ingegneri dello studio Neosin
- Trancerie Emiliane S.p.a.



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