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The Role of Psychophysiology in the Suicide Risk Assessment: is Vagally Mediated HRV a Moderating Factor Between Somatic Anxiety and Suicidal Ideation?

Alice Fiduccia
Clinical Psychology, Clinical Psychophysiology, Clinical Neuropsychology Labs., Dept. of Medicine and Surgery
University of Parma
Parma, Italy
alice.fiduccia@unipr.it

Sara Guidotti
Clinical Psychology, Clinical Psychophysiology, Clinical Neuropsychology Labs., Dept. of Medicine and Surgery
University of Parma
Parma, Italy
sara.guidotti@unipr.it

Carlo Pruneti
Clinical Psychology, Clinical Psychophysiology, Clinical Neuropsychology Labs., Dept. of Medicine and Surgery
University of Parma
Parma, Italy
carlo.pruneti@unipr.it

***Abstract*—Suicide among young people represents a serious global issue. Autonomic hyperactivation could interact with somatic anxiety and influence suicidal ideation in a group of university students, acting as a moderator. Our results underline the importance of carrying out a multidimensional and psychophysiological evaluation in the suicide risk assessment.**

Keywords—suicide, assessment, anxiety, psychophysiology, Hearth Rate Variability

I. INTRODUCTION

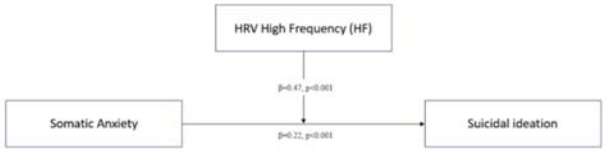
Suicide is the second leading cause of death among young adults, and it is estimated that one person dies by suicide every 40 seconds. Since suicide is a serious public health problem, it is urgent to identify the factors involved and possible precursors. Recent clinical studies have highlighted the importance of psychophysiology in the suicide risk assessment [1]. In addition, vagal tone, a parameter of Heart Rate Variability (or vagally-mediated HRV; HRVvm), predicts ideas of death and subsequent suicidal attempts [2]. In our study, it was hypothesized that autonomic hyperactivation could interact with somatic anxiety and influence suicidal ideation in a group of university students, acting as a moderator.

II. METHODS

A group of 164 university students (101 females, 61.6%, and 63 males, 38.4%) aged between 18 and 35 years (mean=28.85, SD=11.03) were consecutively recruited. Somatic anxiety was assessed through factor Q4 of Cattell's 16 personality factors questionnaire (16-PF), while suicidal ideation was calculated through specific items extrapolated from the Symptom Checklist-90-R (SCL-90 -R). Furthermore, autonomic hyperactivation was measured by recording a psychophysiological stress profile (PSP). In particular, HRV was analyzed through frequency-domain parameters, such as low-frequency (LF; 0.04–0.15 Hz) and high-frequency (HF; 0.15–0.4 Hz) bands as well as LF/HF ratio. LF reflects the sympathetic-parasympathetic balance whereas the HF represents the vagal tone of HRV (HRVvm).

III. RESULTS

Somatic anxiety was a significant predictor of suicidal ideation (β=0.22, t=2.66, p<0.001). Furthermore, the high frequency (HF) value of HRV exerted a significant moderating effect on the relationship between somatic anxiety and suicidal ideation (β=0.47, t=6.11, p<0.001) (F (2, 163) = 20.91; < 0.001).



a.

Fig. 1. The moderation model

IV. DISCUSSION

Although autonomic hyperactivation represents a good prognostic factor in psychotherapeutic treatment, our results highlighted that HRVvm can accentuate suicidal ideation if associated with somatic anxiety in young people. The hyperactivation of the autonomic nervous system could

represent the psychodisiological correlate of psychache experiences linked to suicidal ideation. Our results underlined the indissoluble mind-body continuity, the importance of carrying out psychological evaluation integrated with psychophysiological one in the suicide risk assessment. As Hippocrates of Kos, father of medicine, already argued (4th century BC): “The biggest mistake made today is to separate the psyche from the soma”.

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