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Clinical, Trauma-Related, and Biological Characteristics of Adolescent Inpatients Following Suicide Attempts: A Preliminary Descriptive Study

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Objective: Suicide attempts in adolescence are a critical psychiatric emergency; however, empirical data from acute inpatient settings remain limited, particularly with respect to the integration of clinical and biological characteristics. The primary aim of this study is to descriptively map the psychosocial and biological profiles of adolescents hospitalized immediately following a suicide attempt using psychometric tools and peripheral blood sampling. A secondary aim is to establish a clinically meaningful framework to support future identification of risk factors associated with suicidal behavior.

Methods: This ongoing cross-sectional study is conducted in an acute child and adolescent psychiatry ward. Patients aged 10 to 17 years are recruited into three groups (patients hospitalized following a suicide attempt (SA group), a comparison group of patients hospitalized for suicidal ideation without a recent attempt, and a control group of children without a history of mental health treatment). Adolescents in the clinical groups undergo a psychiatric examination and clinical assessment that includes depressive symptomatology (Children's Depression Inventory [CDI]; Children's Depression Rating Scale-Revised [CDRS-R]), trauma (Yale-Vermont Adversity in Childhood Scale - Child Self-Report [Y-VACS-SR]), suicidality (Columbia Suicide Severity Rating Scale [C-SSRS]), and general psychopathology (Symptom Checklist-90 [SCL-90]). Peripheral biological markers examined include blood count parameters, biochemical results, and inflammatory markers (e.g., tumor necrosis factor alpha [TNF-alpha], interleukin 1 beta [IL-1beta], interleukin 10 [IL-10], and fibrinogen).

Results: The cohort ($n = 28$) consists exclusively of female patients (mean age 14.57 ± 1.75). Most attempts involved pharmacological overdose (82.14%). Participants exhibited high global distress (SCL-90 Global Severity Index: 2.10 ± 0.80) and clinically significant depression severity (CDRS-R raw score: 59.54 ± 13.58 ; CDI score: 31.00 ± 9.65), alongside high intensity of suicidal ideation (C-SSRS intensity of ideation subscale: 17.21 ± 3.84). Biological profiling ($n = 27$) revealed mean TNF-alpha levels of 3.14 ± 1.31 pg/mL and a neutrophil-to-lymphocyte ratio of 1.86 ± 1.70 . Mean fibrinogen and IL-10 levels were 2.79 ± 0.67 g/L and 1.79 ± 0.70 pg/mL, respectively. IL-1beta levels showed marked interindividual variability and a right-skewed distribution, averaging 3.78 ± 10.22 pg/mL (range: 1.05-54.87 pg/mL).

Discussion: This preliminary study provides an initial characterization of adolescent females hospitalized after suicide attempts in an acute psychiatric setting, highlighting the

clinical complexity and heterogeneity of this population. While limited by sample size and ongoing recruitment, our findings underscore the importance of integrating trauma history, symptom severity, and biological markers into a comprehensive clinical assessment. The future inclusion of a suicidal ideation comparison group will allow for analyses examining features associated with the transition from suicidal ideation to suicide attempt.

Ultimately, these data may contribute to the development of more refined and clinically applicable risk stratification approaches in adolescent suicidality. This research was financially supported by the VEGA grant 01/0183/24 of the Ministry of Education, Research, Development and Youth of the Slovak Republic.