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Mechanisms of suicidal behavior development in military personnel

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Introduction: Suicide risk correlates with the nature of psycho-traumatic factors that act directly during military service, their severity, duration of exposure, and individual adaptive capacities of military personnel. The development of suicidal behavior occurs against the background of anxiety and depressive syndromes in military patients and is aggravated by concomitant addictive behavior.

Objectives: To investigate the relationship between the mechanisms of development of suicidal behavior in the military and psychopathological status that potentiate suicidal activity.

Methods: The following diagnostic scales were used: Suicide Risk Scale of the Los Angeles Suicide Center, Sad People Scale (W.M. Patterson, H.H. Dohn, J. Bird), Spielberger-Hanin Scale of Reactive (Situational) and Personal Anxiety (STAI), Hospital Anxiety and Depression Scale (HADS), Hamilton Rating Scale for Depression, Impact of Event Scale (IES-R). Review of existing literature on suicidal behavior among military personnel.

Results: 38 patients with a suicide attempt (within the diagnostic criteria F 43, F 32, F 31, F07 according to ICD-10) were examined during 6 weeks of inpatient care. It was established that the psychopathological presuicidal period in the examined patients was formed against the background of high levels of anxiety (38% of patients), anhedonia (26% of patients), feelings of sadness and hopelessness (19% of patients), addictive behavior (13% of patients), feelings of anger and irritability (4% of patients). In 43% of cases, the formation of suicidal behavior in military personnel was observed against the background of violations of interpersonal relationships: self-isolation behavior (22%), conflict (13%), and antisocial actions (8%). The duration of the pre-suicidal period are several minutes (23% of patients), several days (44% of patients), a month or more (33% of patients). The dominant methods of suicide attempts among the observed military personnel are self-inflicted wounds (61%), poisoning (18%), gunshot wounds (11%), hanging attempts (8%) and self-arson (2%). The reaction of suicidal people to an unsuccessful suicide attempt depends on the current mental state of the military personnel, often with a critical assessment, less often - suicidal-fixed.

Conclusions: In most cases, the development of suicidal behavior in military personnel occurs against the background of anxiety, depressive symptoms, post-concussion disorders, anhedonia, and concomitant addictions. Prevention of suicide among military personnel should include early detection of the main psychopathological symptoms and timely crisis therapy.

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EPP725

Development of artificial intelligence algorithms trained with real-world data for suicide risk prevention in pediatric and adult patients: The IDICIUS Project

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Introduction: Suicide is currently the leading external cause of mortality in Europe and one of the main causes of premature death. Suicidal behavior is highly heterogeneous, making it difficult to predict in clinical practice. However, among people who die by suicide, 83% had attended primary care in the previous year, and 50% had done so within 30 days of their death. Moreover, well-known suicide risk factors are already recorded in routine electronic health records (EHRs). Therefore, the development and implementation of artificial intelligence tools can help improve the prevention of suicidal behavior.

Objectives: The aim is to design a platform based on predictive artificial intelligence (AI) predictive models that allows preventing suicide risk, addressing both suicidal attempts and/or ideation, as well as deaths by suicide, using clinical, biological, and sociodemographic factors through real-world data (RWD) from EHRs in a large sample of pediatric and adult patients undergoing psychiatric treatment.

Methods: This is a retrospective population-based study that uses structured and anonymized EHRs of a large sample of pediatric and adult patients who received mental health care between 2018 to 2024. The IDICIUS project consists of five work packages (Figure 1):

- Extraction and integration of data from different sources: EHRs from Mental Health and Primary Care services; database of outpatient medicines invoiced by pharmacies from the Catalan Health Service; and all suicidal behaviors from the Suicide Risk Code register and also suicide deaths.
- Predictive models creation and validation
- Integrated care platform design
- Design and plan feasibility
- Scientific dissemination of results

Results: We have identified approximately 40,000 patients who visited the Mental Health service at Parc Taulí Hospital between 2018 and 2024, of whom 162 died by suicide. The integration of these databases (Figure 2) has been achieved through the collaboration and coordination of three different public entities over the course of more than a year, ensuring compliance with legal and ethical standards at each step, given the sensitive nature of the