Introduction: Patients with mental disorders often engage in extreme and unpredictable violent behaviors that seriously endanger the public security and stability of the society. Violence risk is commonly assessed by subjective judgement, which may lead to bias and uncertainty in the appraisal results. Existing expression recognition and analysis techniques have limitations in identifying the emotional states of patients with mental disorders.

Objectives: The study aimed to explore the association between violent behaviors and facial expression in patients with mental disorders by machine learning algorithm, to evaluate the application value of facial expression analysis system in violence risk assessment of individuals with mental disorders.

Methods: Thirty-nine patients with mental disorders were enrolled and assessed by using Modified Overt Aggression Scale (MOAS), positive and negative syndrome scale (PANSS) and brief psychiatric rating scale (BPRS). An emotional arousal paradigm was performed and the intensity of baisc emotions and expression action units was recorded before, during and after the paradigm. The processed quantitative data was used to generate one-dimensional waveform maps and two-dimensional time-frequency maps and then quantized feature data were extracted. A machine learning model with high accuracy was trained using these feature data, which can accurately determine the violence risk states of patients and output the probability. All individuals participated voluntarily and provided informed consent. This study was approved by the ethics committee of the Academy of Forensic Science.

Results: The intensity difference of sadness, surprise and fear in different time periods was statistically significant. The intensity of the left medial eyebrow lift action unit was found significantly different before and after the emotional arousal. The intensity of anger and disgust was positively correlated with the MOAS scores, PANSS scores and BPRS scores. The features of time-frequency diagrams of 5 expression action units (medial eyebrow raise, eyebrow lowering, slightly open lips, chin drop and eye closure) and 8 basic emotions were selected and then support vector machine was used for triple classification, which is a classifier that can well distinguish the three stages of non-violence risk period, violence risk period, and post-violence risk period. In the 4:1 training-testing grouping, the classification accuracy reaches 91.2%.

Conclusions: Featured expressive action units and various baisc emotions might be used to capture information associated with violent behaviors. The facial expression analysis system mentioned above can be used as an auxiliary tool to assess the potential risk of violence in patients with mental disorders.

Emergency Psychiatry

EPP304

Transforming Psychiatric Emergency Care: A Community-Focused Model in Trento, Italy

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Introduction: Psychiatric emergencies are a global challenge requiring timely, effective interventions. Traditional intra-hospital approaches often struggle to address the complexity of these crises in a patient-centered and family-inclusive manner. Trento's Mental Health Service has implemented a community-based, multidisciplinary approach to manage psychiatric emergencies, emphasizing the socio-familial context of each crisis.

Objectives: This study aims to evaluate the effectiveness of the Trento Crisis Team in managing psychiatric emergencies outside of hospital settings, reducing hospital admissions, and enhancing patient and family engagement in the recovery process. Additionally, we assess the impact of the crisis service on public stigma related to mental health crises.

Methods: The study reviews the structure and organization of the Trento Crisis Team, which operates within the Mental Health Centre. The team includes 3 psychiatrists, 5 nurses, 5 educators/psychiatric rehabilitation technicians (TERP), and 5 Peer Support Specialists (*"ESP"* in Italian). Data were collected from emergency intervention records, hospital admission rates, and user satisfaction surveys. Comparisons were made between territorial and intra-hospital crisis management outcomes, with statistical analysis on key performance indicators such as the number of hospital admissions and compulsory health treatments.

Results: Preliminary results indicate a reduction in hospital admissions (*Image 1*) and a significant decrease in the number of compulsory interventions (*Image 2*) since the establishment of the dedicated Crisis Team. While overall user numbers have increased (*Image 3*), the availability of peer support and home-based interventions has improved patient satisfaction and engagement. However, the system still faces challenges in reducing hospital admissions due to the increasing volume of psychiatric emergency cases.
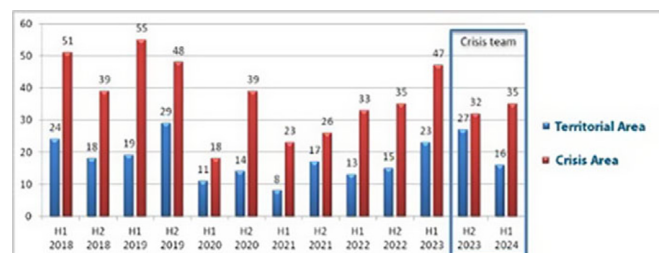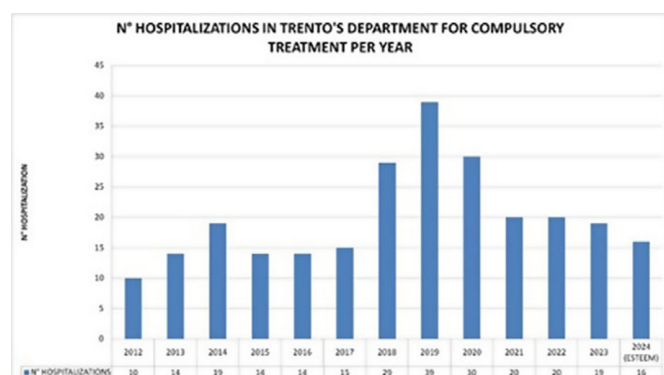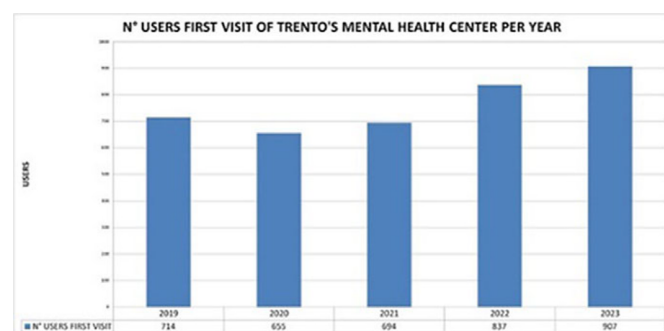
Image 1:

Image 2:

Image 3:

Conclusions: The community-based crisis management model adopted by the Trento Crisis Team offers a promising alternative to traditional hospital-based interventions. By focusing on the individual's socio-familial environment and engaging Peer Support Specialists, the service has demonstrated a capacity to humanize mental health crises and reduce public stigma. Continued efforts are necessary to address resource constraints and further integrate crisis management into community mental health pathways.

Disclosure of Interest: None Declared

Forensic Psychiatry

EPP305

The application of traffic psychology scales in assessment for fitness-to-drive of individuals with mental disorders

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doi: 10.1192/j.eurpsy.2025.606

Introduction: Mental disorder may affect individual's ability to operate the motor vehicle. Previous studies have found that patient's negative emotions may trigger aggressive driving behaviors. Thus, efficiently evaluating the correlation between emotions and driving behaviors in individuals with mental disorders has been drawn emphasis.

Objectives: To explore the related factors of fitness-to-drive of individuals with mental disorders, to determine the application value of traffic psychology scales in assessment for fitness-to-drive of individuals with mental disorders, and to help establish consummate and effective assessment systems.

Methods: One hundred individuals with mental disorders were enrolled as the patient group, and 100 healthy individuals were enrolled as the control group. Positive and Negative Syndrome Scale (PANSS) was used to assess the psychiatric symptoms of the patient group. Driver Profile of Mood States (DPOMS), Driver Anger Scale (DAS), and Driving Behavior Scale (DBS) were used to evaluate the performance during driving within two groups. T-test were used to compare the differences in each factor score of traffic psychology scales within two groups. Pearson's correlation analysis was used to calculate the correlation between scores of PANSS and scores of traffic psychology scales of the patient group.

Results: The patient group had significantly higher score of driving function deficit in DBS than the control group (t=2.48, $P<0.05$), but scores of hostile gestures, impolite driving, overly cautious behaviors in DBS and total score of DAS showed the opposite ($P<0.05$). Positive syndrome in PANSS was positively related to traffic congestion in DAS ($r = 0.315$, $P < 0.05$). Anger in DPOMS was positively related to driving function deficit ($r = 0.488$, $P < 0.01$) and hostile behaviors in DBS ($r = 0.510$, $P < 0.01$), whereas it was negatively related to overly cautious behaviors in DBS ($r = -0.417$, $P < 0.05$). Anxiety and depression were also related to some factors in DAS and DBS.

Conclusions: The study found the practical application value of DPOMS, DAS, and DBS in assessment for fitness-to-drive of individuals with mental disorders. Patient's anger in specific traffic situations such as traffic congestion may be mainly related to their positive syndrome. Patient's anger may be a trigger of aggressive driving behaviors, and other emotions such as anxiety and depression also play important roles. Patient's aggressive driving behaviors may be attributed to the compounding of many negative emotions.