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Validation of BGaze method supporting ADHD diagnosis

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Introduction Eye movement recordings can provide information about higher-level processing of visual information. Recent evidence shows a novel role for eye vergence in orienting attention (Solé Puig et al., 2013). Based on such eye tracking data, the BGaze method (Braingaze; Spain) detects visual attention. The outcomes of the BGaze method have been applied to classify ADHD patients from healthy controls.

Aim In this study, we validated the BGaze method.

Objective We therefore recorded eye movements in children while performing a visual detection task.

Methods We evaluated the BGaze method using 4 types of supervised machine learning algorithms. In total, 138 different trained models were tested. Nineteen ADHD diagnosed patients (children 7–14 years of age) and 19 healthy age matched controls were used to build the 138 models. We performed 30 times repeated random sub-sampling validation. In each repeated random split, training set consisted of 80% of the data and test set of the remaining 20%. Finally, all the 138 models were tested with a validation set consisting of 232 children, including 22 ADHD patients.

Results Across all the 138 models, BGaze method showed an average accuracy of 90.84% (minimum 86.21%; maximum, 95.26%) and an average AUC of 0.95 (minimum 0.90; maximum, 0.97). Best models gave accuracies of 92%, AUCs of 0.96 and FN and FP rates of 4.3% and 7.5%, respectively. Mean scores during the training-testing phase averaged 99.63%.

Conclusion The BGaze method is robust, accurate, and can provide an objective tool supporting the clinical diagnosis of ADHD.

Disclosure of interest The authors have not supplied their declaration of competing interest.

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An innovative child psychiatry training program using a family-based model for at-risk military families

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Introduction Few child psychiatrists are well trained in family-based interventions for military families who experience significant trauma, intergenerational posttraumatic stress disorder, substance abuse, depression and high rates of suicide (Ramsawh et al., 2014). The innovative VA/UCLA/LACDMH Child and Adolescent Psychiatry Training program, sponsored jointly by the VA Greater Los Angeles Healthcare System (VA) and the Los Angeles County Department of Mental Health (LAC DMH), will address unmet needs of at-risk military families using a family-focused model also applicable to other families exposed to trauma.

Objectives To present the curriculum of the VA/UCLA/LACDMH training program and details of the collaboration between the LA VA and LAC DMH.

Aims To highlight how innovative child psychiatry training programs can be developed through creative institutional collaborations.

Methods The VA/UCLA/LACDMH program family-based model and FOCUS (Lester et al., 2011) intervention were structured to meet regulatory standards of child psychiatry training programs.

Results A specialized family-based child training program was created to meet the needs of at-risk military families while providing rigorous child and adolescent psychiatry training. Components Early Intervention Family Clinic for At-Risk Children provides family psychoeducation, and identifies children and adolescents at risk. **Focus** An evidence-based early intervention for at-risk military families to enhance resilience and mitigate stress through improved coping, increased problem solving, and effective communication.

Conclusions A successful collaboration between the LA VA and LAC DMH can lead to an innovative family-based child psychiatry training program.

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Comparison of defence mechanisms in adolescent patients with deliberate self-harm behaviour and without it

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Introduction Twenty percent of children and adolescent population are suffering from psychiatric disorders, according to World Health Organization. Above that, clinical work and previous published reports point to increase of self-harm behaviour incidence and prevalence in many countries, including Croatia.

Aims To compare defence mechanisms in adolescent patients with deliberate self-harm behaviour and without it.

Objectives To explore differences in adaptive and maladaptive defence mechanisms in adolescent patients with self-harm behaviour and without this behaviour; to gain better insight in possible perception and functioning patterns in these two patient subgroups. To assess the effect of possible differences on early diagnostic procedure and therapeutic plan.

Methods Defence Style Questionnaire (DSQ) was administered to 150 patients aged between 14 and 18 years on their first visit to child and adolescent psychiatrist. Seventy-nine patients had history of self-harm behaviour and 81 patients had negative anamnestic data on such behaviour.

Results Comparison of defence mechanisms in these two patient subgroups showed a statistically relevant difference in using defence mechanisms.

Conclusion Results of this study showed significant difference between patients with self-harm behaviour and without such behaviour regarding used defence mechanisms. Awareness of specific mental patterns in patients with self-harm behaviour provides better assessment of suicidal risk and optimal individual approach planning.

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