Institutionen för Klinisk neurovetenskap, Karolinska Institutet

On the Children's Global Assessment Scale (CGAS)

AKADEMISK AVHANDLING

som för avläggande av medicine doktorsexamen vid Karolinska Institutet offentligen
försvaras i Samuelssonsalen, Tomtebodavägen 6, Karolinska Institutet, Solna

Fredagen den 30 mars 2012, kl 9.00

av

Anna Lundh

Huvudhandledare:
Professor Mikael Landén
Karolinska Institutet
Institutionen för Medicinsk Epidemiologi
Göteborgs universitet
Sahlgrenska Akademin

Bihandledare:
Docent Carl Johan Sundberg
Karolinska Institutet
Institutionen för Fysiologi och farmakologi

Fakultetsopponent:
Senior Lecturer Helen Minnis
University of Glasgow
Child and Adolescent Psychiatry
Mental Health in Wellbeing
Institute of Health and Wellbeing

Betygsnämnd:
Docent Jan-Olov Larsson
Karolinska Institutet
Institutionen för Kvinnors och barns hälsa

Professor Kjell Hansson
Lunds Universitet
Socialhögskolan

Medicine doktor Mia Ramklint
Uppsala Universitet
Institutionen för neurovetenskap

Stockholm 2012

Abstract

Rating scales and diagnostic instruments have become increasingly important tools in psychiatric care over the past several decades. Using these standardized tools to collect information and evaluate patients enables streamlined evidence-based diagnosis and assessments of functioning. This thesis revolves around the Children's Global Assessment Scale (CGAS), a widely used rating scale designed to measure how a child functions psychosocially in daily life.

In Paper I, the inter-rater reliability (IRR) and accuracy of CGAS ratings among untrained raters (n=703) were assessed in a large clinical setting. The untrained raters scored case vignettes significantly higher than the gold standard established by experts. The IRR in terms of intra-class correlation coefficient (ICC) was 0.73. Social workers and psychologists were significantly more likely to have overall aberrant ratings than medical doctors. The results suggest that reliability and accuracy is moderate when CGAS is used in a clinical setting with untrained raters.

In Paper II, two training methods to improve CGAS ratings were evaluated. Untrained raters (n=648) were randomised to training either by a CD-ROM or in a seminar. In addition, 55 raters formed a non-randomised comparison group. There was no significant difference between the two training groups at the 12-month follow-up. The untrained comparison group improved at the same order of magnitude as the training groups. The ICCs at baseline and at end-of-study were 0.71/0.78 (seminar), 0.76/0.78 (CD-ROM), and 0.67/0.79 (comparison). These results speak in favour of using the less resource-demanding computer-based training. However, the overall training effect was too small to be clinically relevant. Future evaluations of training methods should include a control group to control for unspecific learning effects.

Registration of CGAS ratings in the clinical database Pastill was initiated at the completion of the training activity carried out for Paper II. This enabled a study on the effectiveness of child psychiatric treatment by examining the change in psychosocial functioning as measured by CGAS described in *Paper III*. The change in CGAS ratings between intake and case closure was investigated for 12,613 patients. CGAS improved during the course of treatment across all diagnostic groups. In the mood disorder group, several psychotherapies were associated with improved outcome whereas medication was not. In the Attention-Deficit Hyperactivity Disorder (ADHD) group, medication with central stimulants was not associated with improvement. Treatment-as-usual was found to be less effective than clinical trials have indicated, particularly for the ADHD group, suggesting that results from clinical trials cannot be extrapolated to routine child psychiatric care. Hence, more studies of ADHD and mood disorders are needed to investigate the effectiveness of medication/psychotherapy in regular treatment.

In Paper IV, the Pastill data were linked to Swedish national registers to see whether CGAS ratings at end-of-treatment predict long-term negative outcomes in young adults. To do this, 4,876 patients were followed up prospectively. Patients with CGAS≤60 at end-of-treatment had a moderately increased risk of a criminal conviction and a substantially increased risk for bipolar disorder and borderline personality disorder during follow-up compared to patients with CGAS>60. Low CGAS ratings were not associated with depression, suicide attempt, or substance misuse. Hence, CGAS ratings provide specific long-term prognostic information, and adolescents with CGAS scores below 60 at end-of-treatment should be considered for intensified follow-up.