

**Aims.** The National Autism Service for Adults receives over 600 referrals annually and with an extensive waitlist, COVID-19 restrictions on in-person assessments were a challenge for service delivery. We aimed to adapt the Autism Diagnostic Observation Schedule (ADOS) for online delivery and investigate whether it is comparable to the in-person ADOS in predicting Autism Spectrum Disorder (ASD) diagnostic outcome. We also aimed to obtain qualitative feedback from service users and clinicians regarding experiences of the online ADOS.

**Methods.** A working group of staff who administer ADOS and representatives from psychiatry, psychology and management reached consensus that an online version of ADOS module 4 was feasible based on experience that a lot of information required for coding is obtained verbally and some tasks were adaptable for online delivery. After the pilot, it was agreed all algorithm items could be coded except 'unusual eye-contact'. Subsequently, 163 service users attended an online ADOS between August 2020 and February 2021. A matched-comparison group consisted of 198 service users seen for an in-person ADOS between May 2014 and February 2020. Algorithm scores were recorded and ASD diagnosis was made by a trained clinician. Qualitative feedback regarding the online ADOS was collected from 46 service users and 11 clinicians.

**Results.** The working group agreed the online and in-person ADOS were closely matched regarding administration and coding. Mean scores for service users who received an ASD diagnosis were comparable for the online and in-person ADOS groups (7 and 8 respectively). This was also shown for those who were not diagnosed with ASD (3 and 4 respectively). A two-sample t-test showed no significant difference in total scores between the online and in-person ADOS ( $p = 0.38$ ). Qualitative feedback suggested good service user and clinician satisfaction; only 27% of service users indicated they would have preferred an in-person assessment; 88% of clinicians reported there were gains from offering an online alternative. Although the online and in-person ADOS perform similarly, clinicians reported relying more on qualitative reports over scores from the online version to inform diagnostic decision.

**Conclusion.** To our knowledge, this is the first study to examine using an online ADOS within an adult diagnostic service. Due to its comparable performance, the online-ADOS is a viable alternative option for service delivery when in-person assessments are not possible. As this clinic group has high rates of comorbid mental health difficulties, the applicability of online assessments could generalise to other services and have an impact beyond the pandemic.

### The Effectiveness of Exercise as a Treatment of Major Depressive Disorder in Adolescents: A Systematic Literature Review of Randomised Control Trials

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**Aims.** Major depressive disorder (MDD) is the most prevalent mental health condition among adolescents. Current treatments have limited effectiveness, accessibility and questionable safety profiles. Exercise is becoming a more widely recognised intervention for MDD in adults. However, evidence and research for its effectiveness in adolescents is lacking. This

review aimed to establish if exercise is effective at reducing MDD symptoms and severity in adolescents, and thus its first-line treatment potential.

**Methods.** Electronic databases were searched for randomised control trials studying effects of exercise in adolescents, clinically diagnosed with MDD. Trials were excluded if participants' depression was secondary to another disorder or health condition. The primary outcome measure was depression symptom severity, assessed by a validated depression symptom scale. Six trials met the eligibility criteria and were included in this review.

**Results.** Four trials found reduced depression scores in the exercise intervention group compared to control immediately post-intervention; of the four trials which included follow-up data, all reported higher rates of remission in the exercise intervention group compared to control. The length of exercise intervention programme seems important, needing to be greater than 6-weeks for a therapeutic effect. The type of exercise doesn't appear critical.

**Conclusion.** Given the small sample sizes and methodological limitations presented by the trials, it is difficult to draw definitive conclusions. Further and larger-scale studies are needed before exercise can become a recognised and readily recommended treatment for MDD in adolescents; but thus far, it seems to have a promising therapeutic potential in both short and long term.

### Digital Phenotyping Methods to Measure or Detect Social Behaviour in Patients With Serious Mental Illness (SMI): A Systematic Review. a Closer Look at Bipolar Disorder

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**Aims.** To provide a fresh insight into the extent digital phenotyping methods have been employed to measure or detect social behaviour in patients with SMIs; with a closer look at the validity, reliability, acceptability and tolerability of these digital phenotyping methods.

**Methods.** Using specified search terms relating to digital phenotyping metrics and terms related to SMIs, a thorough literature search strategy for studies was employed across the following electronic databases: PubMed, Embase, and PsychINFO - from inception to July 2021.

Included studies employed digital phenotyping methods, collecting either passive, active or mixed-modal data, which in principle reported metrics representing social behaviour on patients with an SMI. Here we present a preliminary analysis of studies reporting results for patients with BD, with a particular focus on tolerability and acceptability.

**Results.** Of 4,646 records initially screened, a subgroup of 9 studies ( $n = 474$ ) directly focusing on patients with BD are reported here. Across the studies, we find a modest adherence rate towards these applications by patients, ranging from 72.6% to 89.2%. Methods used by the studies include the frequency of phone calls and text messages, and self-reported and observer ratings of social and interpersonal functioning. The collection of such digital phenotyping data appears tolerable and acceptable to

participants with BD, with patients reporting them to be supportive and only mildly intrusive.

**Conclusion.** Our preliminary analysis suggests that digital phenotyping of social behaviour may be acceptable and tolerable to participants with Bipolar Disorder. In an increasingly digital world, digital phenotyping methods of social behaviour may assist physicians with clinical assessment and prediction of clinical outcomes including relapse. Future analyses will assess the reliability and validity of the data that such methods yield, and their potential therapeutic value.

### What Do Secure Care Stakeholders Want From the Forensic MDT? a Qualitative Study With Service Users, Carers, and Nurses

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**Aims.** Clinical teams oversee the care of patients within secure psychiatric inpatient settings. They are made up of a number of professions, including psychiatrists, psychologists, occupational therapists, social workers and nurses. The effective collaboration of the different members of the clinical team is vital for its functioning. However, so is the team's interface with other key stakeholder groups, namely nursing teams, service users and carers. Understanding the needs and priorities of these groups regarding their relationships with the clinical team is also important to recognise and in the provision of good quality care. This study aims to understand the experiences, priorities and needs of stakeholder groups in their relationship with the clinical team. Gaining feedback from multiple sources (service users, carers, nurses) will help facilitate functioning of the clinical team in the delivery of excellent care to service users.

**Methods.** Ethical approval was granted by the host NHS trust. Between October 2019 and October 2021, three focus groups were conducted using a semi-structured interview to gather responses from carers, nurses and service users (6 participants in each group) respectively. The interviews were recorded and transcribed. Thematic analysis was used to code each transcript and themes were drawn from the coded data.

**Results.** Dominant themes emerged from the three data sets. Consistent themes between groups included communication, hierarchy/power and representation. There were also differences in themes identified, with the carer group bringing the theme of education/ knowledge, and nursing group raising the value of human relationships, including compassion. The theme of transparency emerged strongly for the service user group.

**Conclusion.** This study offers an interesting perspective on what distinct stakeholder groups want and value in their relationship with the clinical team. Gaining feedback from multiple sources (service users, carers, nurses and members of the MDT) can better inform a team about its functioning and help improve performance. Developing a tool to aid the systematic collection of multi-source feedback is the next step of this

project, facilitating the voices of key stakeholder groups to be heard.

### Derivation and Validation of the Management and Supervision Tool (MaST) Risk of Crisis (RoC) Algorithm Using Electronic Health Record (EHR) Data

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**Aims.** The Management and Supervision Tool (MaST) helps NHS mental health care professionals identify patients who are most likely to need psychiatric hospital admission or home treatment, due to severe mental illness, through a Risk of Crisis (RoC) algorithm driven by electronic health record (EHR) data analytics. We describe the derivation and validation of the MaST RoC algorithm, and its implementation to support preventative mental healthcare in the NHS.

**Methods.** The RoC algorithm was developed and evaluated with EHR data from six UK NHS trusts using Ordered Predictor List propensity scores informed by a priori weightings from pre-existing literature, as well as real-world evidence evaluating the associations of clinical risk factors with mental health crisis using NHS EHR data. Mental health crisis was defined as admission to a psychiatric hospital or acceptance to a community crisis service within a 28-day period. Predictor variables included age, gender, accommodation status, employment status, Mental Health Act (MHA) status (under section or Community Treatment Order), and previous mental health service contacts (including hospital admissions and crisis services). Data were analysed using Ordered Predictor List propensity scores. The algorithm was derived using structured EHR data from 2,620 patients in a single NHS trust and externally validated using data from 107,879 patients in five other NHS trusts. Qualitative and quantitative data on feasibility, acceptability and system efficiency impacts of MaST implementation were obtained through staff surveys and local audits.

**Results.** The factors associated with greatest propensity for mental health crisis included recent previous crisis, multiple previous crises, higher number of mental health service contacts in recent weeks, MHA section, accommodation status and employment status. The RoC algorithm identified 64% and 80% crises in its top quintile. Sentiment analysis of staff surveys suggested that the use of MaST improved productivity by reducing time taken to access patient information to support caseload management that was previously difficult to obtain through manual review of EHRs. The systems efficiency audit revealed a reduction in duration of crisis and inpatient admissions following MaST implementation.

**Conclusion.** The MaST RoC algorithm supports the identification of people more likely to use crisis services in NHS mental health trusts, is feasible to implement, and improves systems efficiency. EHR-derived algorithms can support real-world clinical practice to improve outcomes in people receiving NHS mental healthcare.