breakthrough which will allow to effectively treat mental disorders and will bring psychiatry back to the realm of medicine Computational Psychiatry together with advances in technology, will transform psychiatry beyond recognition: With the development of the connecting internet and sensor technology (e.g., face speech recognition) mental status examination can be easily extracted and delivered over distance (tele-psychiatry). With the help of AI the extracted psychiatric phenomenology can be interpreted to match most of the diagnostic process of a skilled psychiatrist. Once achieved a continual psychiatric monitoring coupled with new technology of wireless dry-electrode electrophysiological brain imaging can begin and collect big-data. Big-data analysis stand a good chance to reveal the etiological correlations between mental disorders and their brain-related origins. Thus, etiology for mental disorders can begin to unravel. Neural modulation technology will be the answer for effective therapeutic interventions (i.e., future brain pacers).

Disclosure: I am in a preliminary effort to develop a Digital application in the field of Psychiatry
Keywords: psychiatry; diagnosis; digital; Brain

S0039

Digital phenotyping in psychiatry

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Digital phenotyping represents a new approach aimed at measuring the human behavior by using smartphones and personal device sensors, smartphone apps, keyboard interaction, and various features of subject's voice and speech. Data collected by a digital phenotyping smartphone application are divided into two categories: a) active data (i.e., those usually collected by using a survey modality) which require an 'active participation' from the subject to be generated; and, b) passive data (for instance, those data collected by using Global Positioning System (GPS) traces), usually collected without any participation or action from the subject. Digital phenotyping may theoretically enhance clinicians' ability to early identify, diagnose and manage any mental health conditions and favoured a more personalized diagnostic and therapeutic approach to several mental conditions. The innovative and insightful approach applied by the digital phenotyping appears to find an interesting and useful application in the field of psychiatry. The digital phenotyping is in line with the new paradigm of the precision psychiatry, i.e. the new approach performed to help clinicians in customizing a psychiatric treatment for each patient, by integrating information about individual phenotypes and genotypes with biographical, clinical and biological data. A precision psychiatry approach would ideally allow clinicians to tailor clinical decision-making and stratify patients to each available treatment according to each one's likelihood of treatment response and prognosis. Our aims are at providing a comprehensive panorama on evidence-based applications of digital phenotyping in psychiatry.

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Keywords: digital diagnosis; digital psychiatry; digital phenotping

S0040

Diagnostic automated algorithms in neurodevelopmental disorders: Focus on automatic motor assessment

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Difficulties in motor development are frequent and impairing. However, the assessment of these motor learning skills is difficult and limits early stage rehabilitation. Electronic sensors and algorithms can help to measure motor difficulties more easily and objectively. We will present a systematic review detailing these methods and challenges in Autism Spectrum Disorders (ASD). Electronic tablets, give access to handwriting features that are not usually evaluated in classical assessments. We describe how such digital features (in static, dynamic, pressure, and tilt domains) allow diagnosing dysgraphia and how they evolve during children development. From a finer analysis, three different clusters of dysgraphia emerge, longitudinal studies will allow to underline different patterns of development that seemingly require tailored remediation strategies. However, those digital features are not used in the context of conventional pen and paper therapies. It is possible to engage children with typical development in handwriting exercises by asking them to teach a robot to write. We implemented a long-term case study (20 sessions, 500 minutes in total) observing a child with severe Developmental Co-ordination Disorder who did not progress anymore with a classic pen and paper approach by enriching this setup with various training activities using real-time feedback loops (on tilt, pressure, dynamic, pauses). We show how this new method tackles previous child's behaviour avoidances, boosting his motivation, and improving his motor and writing skills. This talk demonstrates how new motor digital features allow the implementation of innovative motor remediation interventions, which rely on fostering children's personal characteristics and adaptation skills.

