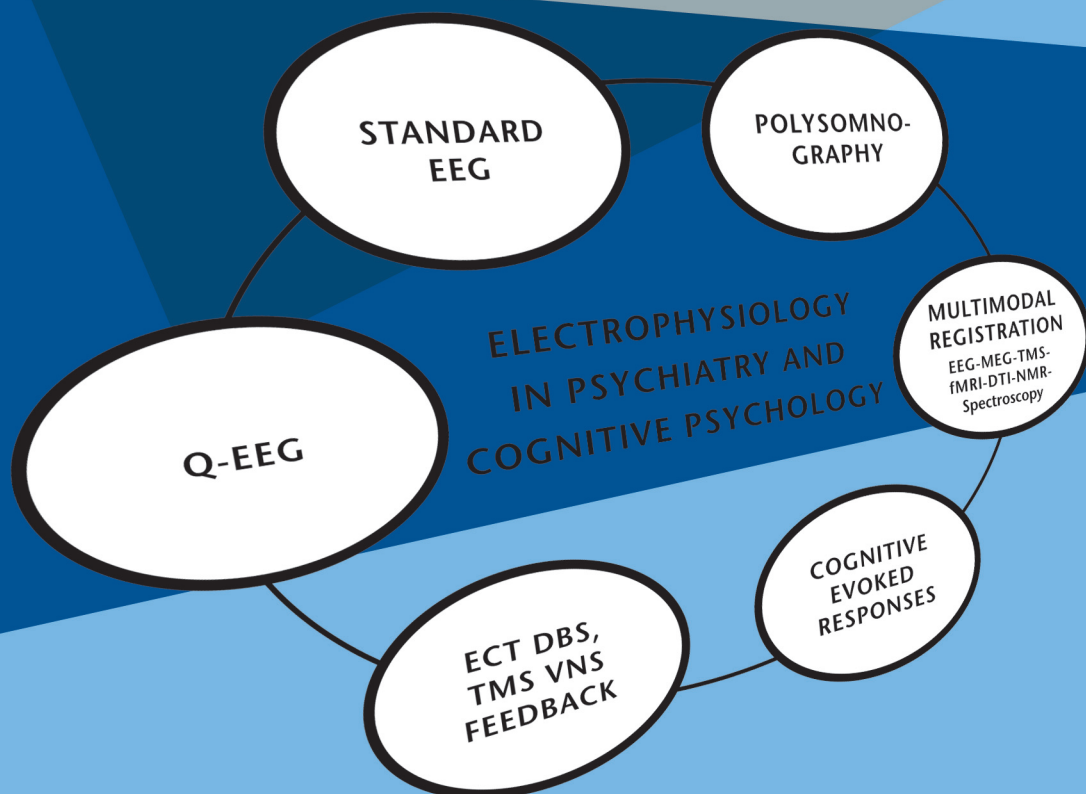


Standard Electroencephalography in Clinical Psychiatry

A practical handbook

Editors: Nash Boutros, Silvana Galderisi,
Oliver Pogarell and Silvana Riggio



Standard Electroencephalography in Clinical Psychiatry

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Standard Electroencephalography in Clinical Psychiatry

A practical handbook

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Preface

Electroencephalography (EEG) is an important, non-invasive functional method for the investigation of electrical activity in the brain. EEG alone, or at times in combination with video EEG monitoring, is a very useful tool in the differential diagnosis of psychiatric and/or neurological presentations. It can also be useful for monitoring and helping to evaluate the clinical or therapeutic course of psychiatric disorders and to guide treatment plans.

The idea of a practical handbook on *Standard Electroencephalography in Clinical Psychiatry* was originally conceived by Dr N. Boutros following many discussions amongst members of the EEG and Clinical Neurosciences Society. These discussions concerned the relative roles of the standard (visually inspected) EEG (EEG) and the quantified EEG (QEEG) in clinical psychiatry. They resulted in the firm conclusion that both techniques are important and that they are complementary. While a number of texts addressing QEEG applications in psychiatry have been published in recent years, the last book addressing EEG in psychiatry was that by John R. Hughes and William P. Wilson [1] from 1983. We therefore started to compile this book, which integrates our combined knowledge and will serve as a comprehensive and practical guide to assist psychiatrists in clinical decision making using EEG.

This book was envisioned as a practical guide to assist psychiatrists in clinical decision making using EEG. It reviews the basics of a normal and abnormal EEG exam, the value and the limitations of EEG testing and its clinical indications. Specific clinical pitfalls and pearls, that are ‘red flags’, in the EEG assessment are stressed throughout the book.

Despite the fact that we have had the ability to record brain electrical potential since 1924 and that this work was spearheaded by Dr Berger, a psychiatrist, to this day the significance of some EEG changes present in psychiatric patients remains poorly understood. The scalp-recorded visually inspected standard EEG is an under-utilised tool in the assessment of patients with a psychiatric diagnosis: failure to utilise this tool may contribute to a delay in making an accurate diagnosis and initiating appropriate therapy. The EEG is an essential tool in the differential diagnosis of neurological versus psychiatric disorders, especially when performed in correlation with the clinical manifestations and when special techniques such as video monitoring recording are used.

The goals of this book are to provide a brief historical perspective of EEG in psychiatric practice; to provide an understanding of the physiologic bases of the EEG signal and of the basic elements of EEG recording; to review normal and abnormal EEG patterns; and to provide the psychiatrist with a clear understanding of both the value and limitations of EEG testing and its clinical indications in the diagnostic work up as it applies to psychiatric patients.

There is detailed coverage of the role of EEG in:

- (1) the evaluation of non epileptic seizures;
- (2) the differential diagnosis of the behavioural manifestations of seizures of frontal lobe origin;
- (3) the differential diagnosis of nonconvulsive status epilepticus;
- (4) the evaluation of childhood psychiatric disorders;
- (5) the assessment of the patient with psychosis, mood disorders and catatonia;
- (6) the assessment of personality disorders and anxiety disorders;
- (7) the differential diagnosis of delirium versus dementia and its differentiation from a primary mood, anxiety or psychotic disorder.

After an historical review, Chapters 2 and 3 provide a synopsis of the physiologic bases of the EEG and its recording and analysis methodology. Chapters 4 and 5 then summarise the most important normal and abnormal EEG patterns. These chapters are not meant to be comprehensive: the interested reader is referred to the many available EEG atlases.

Chapter 6 emphasises the potential of the EEG in the evaluation of behavioural manifestations in order to help reach a clinical diagnosis and develop an appropriate treatment strategy. The following chapters address the application of this technique in specific groups of disorders, starting with developmental disorders, that is ADHD, autism, conduct disorders and learning disabilities even in the absence of seizures. Helpful guidelines are provided for when to use an EEG in the evaluation of these entities.

Chapter 8 discusses possible EEG findings in the evaluation of psychosis, mood disorders and catatonia with particular reference to their prognostic implications and addresses the differential diagnosis with general medical conditions. This is followed by chapters on personality disorders and anxiety disorders and on delirium and dementia.

Chapter 11 describes the effects of psychotropics drugs on the EEG. It includes a discussion of data indicating the usefulness of EEG in the diagnosis of drug-induced CNS side effects or toxicity.

The final chapter highlights the need for training guidelines and certification processes specific to Neuropsychiatric Electrophysiology and the issues involved in developing training programmes and certification.

Throughout the book, the authors provide specific illustrations of the different EEG patterns and review various technical artefacts. These illustrations will enable the reader to have a clear understanding of both the value and limitations of EEG testing and its clinical indications. Helpful clinical vignettes, together with well designed summary tables and flow diagrams, support the application of EEG in the differential diagnosis of psychiatric and neurological illnesses. An overall goal of the volume is to make the point that EEG abnormalities (whether focal or diffuse slowing, abnormal background rhythms, or epileptiform activity) represent important findings that must be taken into consideration when formulating a biopsychosocial understanding of an individual patient.

Reference

1. John, R. Hughes and William P. Wilson (1983) *EEG and Evoked Potentials in Psychiatry and Behavioral Neurology*, Butterworth-Heinemann.

The Editors

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