

Preface

The voluminous EEG literature relevant to psychiatry extends back to the mid-1930s and is spread throughout a large number of journals of different specialties as well as in textbooks and atlases. The psychiatrist interested in exploring this literature faces a tedious task. This volume is designed to serve as a reference source containing both historical and recent references with a special focus on the existing gaps of knowledge regarding EEG deviations in psychiatric populations. This book is not meant to be an exhaustive compendium of this vast literature, but a guide to interested clinical researchers into the many unanswered questions regarding standard EEG deviations in clinical psychiatry. The interested researcher will find this book a good starting point with the most influential literature summarized and the issues and questions highlighted. The researcher will then need to further explore the literature particularly the areas not covered in this book.

It will become obvious to the reader that much of the literature reviewed in this book is rather old. Many of these old works remain the most current work on the particular topic. This is a testimony to the severe neglect this area of research has experienced in the last few decades as the field of the clinical EEG in psychiatry became an orphan field with minimal interest from both the fields of neurology and psychiatry.

Structure and Organization of the Book: every chapter begins by outlining the clinical issues then reviews available literature and concludes by highlighting; (a) currently supportable findings, and (b) open research questions. In some chapters the suggestions regarding the research design that will most likely lead to generating data that can move the field toward resolving unresolved issues are offered. Some references are bolded. This signifies particular significance for the paper or the textbook.

Part I of the book handles a number of general topics of relevance to the entire field of psychiatry. This part begins with a historical account of why psychiatry and the standard EEG are currently so far removed from each other. The chapter is focused on the reasons for this current situation and then discusses some of the issues that give the interpretation of the standard EEG in psychiatric settings a special status, and the skills necessary for the adequate and skilled performance of this task. The history chapter at the beginning of the Boutros et al. (2011) goes into more details of the history of EEG in general. This part continues by tackling the issue of the boundaries of the normal EEG and highlights the current lack of well-

defined borders between patients with and without psychiatric problems. The two kinds of abnormalities encountered in the standard EEG (the term sEEG is used throughout the book to denote the visually inspected interpretation of the EEG which is the sole focus of this volume) are discussed in separate chapters. Slowing of the EEG rhythms or the appearance of abnormal slow rhythms occupies one chapter while epileptiform activity occupies another. In the epileptiform chapter, we also provide some data on the value of an animal model of the isolated epileptiform discharge (IED). This part also covers areas related to the effects of psychotropic medications on the sEEG within the context of differentiating generalized slowing of the EEG background or the superimposition of diffusely distributed slower rhythms secondary to the toxic effects of psychotropic medications and diffuse slowing due to other general medical conditions. The book has not attempted to cover the effects of psychotropics on the EEGs that do not render them abnormal. This is the province of the pharmacology-EEG discipline.

Part II deals with various adult psychiatric conditions with Part III covering a number of childhood and adolescent psychiatric conditions where increased prevalence of EEG abnormalities have been documented. Part IV deals with the difficult issue of the controversial waveforms. The five chapters included in this part were the most difficult to write and I am deeply indebted to Prof. Frederick Struve for his contribution to the Small Sharp Spike and B-Mitten chapters which he developed while working with me at Yale University.

This book drew on a large number of outstanding sources most importantly the “Electroencephalography: Basic Principles, Clinical Applications and Related Fields” edited by Ernest Niedermeyer, Fernando Lopes da Silva particularly the latest two editions in 1987 and 2005. The “EEG and Evoked Potentials in Psychiatry and Behavioral Neurology” by Hughes and Wilson (1983) remains an important source of this literature. The Gibbs and Gibbs atlases are also important and essential sources.

Throughout the time I was working on this volume, I was repeatedly advised to include sections on the quantified EEG (QEEG). I elected to keep the volume focused on the standard EEG. It is fully predicted that the major expansion in psychiatric electrophysiology will come from the quantification of the signal whether the signal was collected from evoked potential EEG or magnetoencephalography (MEG) procedures. The inclusion of the already massive QEEG data in psychiatric conditions would have completely drowned the important points being made in this volume and would have resulted in increasing the cost of production which also was felt to defeat the purpose. Finally, a number of excellent texts devoted to QEEG have been already appeared. I would like to specially mention the “Handbook of Quantitative electroencephalography and EEG Biofeedback” by Thatcher (2012). This volume is being periodically updated in print and online.

Finally, the volume also avoids the delving into neurological conditions like dementia and delirium. The reason for that is again to keep the book focused on main stream psychiatric disorders and the fact that these topics are extensively covered in many EEG textbooks. An apparent obvious omission would be the issue of epilepsy and psychiatric symptoms. Again, this topic has been the subject of

extensive investigations and a number of excellent volumes dedicated to this topic are available. Relative to the many neurological disorders with psychiatric manifestations is the skillful use of the standard EEG in conjunction with neuropsychological testing. While some early work indicated correlations between the measures, this literature remains limited and work on this interrelationship is now all but abandoned in favor of the more advanced computer-based EEG analysis. Janati (2010) argues against the premature discounting of the standard EEG in the clinical practice of psychiatry.

All in all, my hope is that psychiatric electrophysiologists will find many ideas worth pursuing in this book. In fact if the publication of this book results in a single research project, I would be satisfied that I have succeeded in my mission.

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