The Medical Basis of Psychiatry
To George Winokur.  

SHF and PJC

To my father, S. Mehdi Fatemi, and to my family, S. Ali Fatemi, MD, Naheed Fatemi, Paryin Fatemi, S. Mohammad Fatemi, Neelafaa Fatemi, Maryam Jalali-Mousavi, and last but not least, my mother, Fatemeh Parsa Moghaddam, whose love and support have enabled me to complete this work.

SHF

To my children, who have tolerated my passion for work and psychiatry: Clarissa Beth Weirick, Matthew Charles Clayton and Andrew Curtis Clayton, to George and his lovely family and to all those at Washington University Department of Psychiatry who taught me and inspired me.

PJC
This book has brought together the contributions of more than 70 outstanding experts in their fields, and this alone should be enough to recommend it to psychiatrists and others engaged in mental health research and education, as well as to those focusing on the organization and provision of mental health care. But there are other features in this assembly of excellent chapters that speak for this volume and make it quite unique.

Thus, the editors of The Medical Basis of Psychiatry, Third Edition, have demonstrated that several important issues often presented as major dilemmas before psychiatrists are in fact minor problems, and, therefore, discussion about them should not be allowed to block progress. The first is deciding between a classification of mental disorders in groups of categories versus a crosswise examination of the domain of psychiatry by means of dimensions of functioning. Both are possible and necessary, and the series of chapters dealing with groups of categories of mental disorders that opens this book is richly complemented by the chapters that deal with dimensions of functioning, such as thought disorder and disturbances of mood. Another dilemma is the biological versus nonbiological approach to psychiatric problems: here again, the chapters on various methods of investigation, i.e., in the laboratory, in the application of neuroimaging techniques, and in epidemiological studies, clearly show the advantages of each of these approaches without diminishing the value of the others. The dilemma of biological versus nonbiological treatments is also resolved in a similar manner, showing even more clearly that the editors took a balanced, ecumenical, and practical approach to the key aspects of today’s psychiatry.

It gives me great pleasure, therefore, to thank the editors of and contributors to The Medical Basis of Psychiatry, Third Edition, for their efforts, which have resulted in such a comprehensive review of current evidence and issues of relevance to psychiatry, and to express the hope that this work will find the wide distribution that its quality and coverage richly deserves.

Norman Sartorius, MD, PhD
Geneva, Switzerland
Nearly 14 years have elapsed since the second edition of this book was published. George Winokur pioneered the early editions of this book and contributed significantly to the scientific value of this book by recruiting first-class psychiatrists and neuroscientists to contribute. However, George Winokur’s major contribution to the advancement of psychiatry remains his development of the Washington University criteria, along with Samuel Guze, Eli Robins, John Feighner, Robert Woodruff Jr., and Rodrigo Munoz. These criteria revolutionized and promulgated the first scientific classification of psychiatric nosology. Psychiatry has emerged as a burgeoning scientific field with major advances in etiology and treatment of several disorders. Just as there was excitement in the anatomic advances that took place a hundred years ago when Emil Kraepelin and his collaborators took on the enormous task of classifying psychiatric disorders based on rational scientific thinking, new advances in genetics, biochemistry, neuroanatomy, and pharmacotherapy of mental disorders have brought us even closer to a better understanding of complex disorders such as schizophrenia, bipolar disorder, depression, and even autism.

The major goal of previous editions of *The Medical Basis of Psychiatry* was to update the busy clinician, psychiatric resident, and medical student with the most current information on the etiology, diagnosis, and treatment of psychiatric disorders. This goal has been our focus for the third edition. All attempts have been made to provide the reader with the most up-to-date information and literature supported by a close survey of the field. We are grateful to all the chapter authors, who have strived to provide the reader with the biological foundations of psychiatry. The Third Edition adds chapters dealing with new concepts in biology and treatment of mental disorders. We are optimistic that *The Medical Basis of Psychiatry*, Third Edition, upholds the standards of this classic textbook, and that its focus on the biologic and medical aspects of psychiatry will continue to be of significant help to all interested in the scientific practice of psychiatry.

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Many have helped to make the publication of this book possible, including Dr. John Vuchetich. We are especially indebted to Mr. Timothy D. Folsom, who faithfully reviewed all chapters for accuracy and worked as a liaison between the editors and the authors of the chapters and Ms. Teri Jane Reutiman, for help with various aspects of editing this book. We are grateful to Ms. Laurie Iversen for clerical assistance. We are also grateful to Dr. Alessandro Guidotti and Dr. Shitij Kapur for their contributions to Chapter 40.

We are also grateful to the publishers and authors who have generously given approval for reproduction of tables and figures, as well as to Mr. Richard Lansing, Mr. John Morgan, Ms. Sharmila Krishnamurthy, of Integra, and the Humana Press for an excellent job in publishing this book.

SHF
PJC
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Color Plates

Color plates follow p. 650.

**Color Plate 1**  
*a* Several Reelin-positive cells are localized to the hilus (CA4) of hippocampal complex. *M*, dentate inner molecular layer, *GC*, granular cell layer. Original magnification, ×40.  
*b* SNAP-25 immunostaining is localized to various layers of ventral hippocampus in subjects with bipolar disorder (A), major depression (B), and schizophrenia (D) compared with a normal control subject (C).  
*a* Reprinted with permission from the Nature Publishing Group (47).  
*b* Reprinted with permission from Lippincott Williams and Wilkins (178) (Fig. 6.2; see complete caption and discussion on p. 89).

**Color Plate 2**  
Ventricular size in monozygotic twins discordant for schizophrenia. Coronal MRI scans of twins discordant for schizophrenia show lateral ventricular enlargement in the affected twin (reprinted with permission from the Massachusetts Medical Society (179). All rights reserved) (Fig. 6.3; see discussion on p. 90).

**Color Plate 3**  
These camera lucida drawings compare the distribution of nicotinamide–adenine dinucleotide phosphate–diaphorase-positive-stained neurons (squares) in sections through the superior frontal gyrus of a control and schizophrenic brain. There is a significant shift in the direction of the diaphorase positive neurons in the white matter in the schizophrenic brain. Numbers 1 to 8 indicate compartments of the brain; Roman numerals indicate the cortical layers (reprinted with permission from the American Medical Association (60). All rights reserved) (Fig. 6.4; see discussion on p. 90).

**Color Plate 4**  
Reduction of fractional anisotropy (FA) in the posterior hippocampus in children and adolescents with schizophrenia compared with control subjects. The figures on the top demonstrate areas of decreased FA on the sagittal (left) and axial (right) images. The lower images correspond to the same orientation as those above and are presented in a “glass brain” format. These lower images demonstrate the focal location of hippocampal FA differences (courtesy of the Youth Psychosis Research Group at the University of Minnesota; further information is described in reference (21)) (Fig. 22.1; see discussion on p. 393).

**Color Plate 5**  
Temporal lobotomy (Fig. 26.1; see discussion on p. 447).

**Color Plate 6**  
Normal SPECT scan (Fig. 26.2; see discussion on p. 447).

**Color Plate 7**  
Age-corrected lifetime risk for relatives of subjects with schizoaffective disorder (S-A), bipolar disorder I (BPI), bipolar disorder II (BPII), unipolar disorder (UP) and healthy control subjects for developing the disorders listed above (Fig. 29.1; see discussion on p. 492).

**Color Plate 8**  
P50 abnormality in schizophrenia. (Fig. 29.2; see complete caption on p. 506 and discussion on p. 505).
**Color Plate 9** A 30-second epoch of REM sleep is exemplified by rapid eye movements (A), desynchronized low voltage mixed frequency EEG with occasional saw-tooth wave forms (B), absent muscle tone in the chin EMG (C), and no movement of lower extremities (D) (Fig. 37.2; *see* discussion on p. 663).

**Color Plate 10** The two-process model of sleep–wake regulation. With ongoing wakefulness, the homeostatic sleep drive (process S) increases, reaching its maximum level as the circadian alerting signal (process C) diminishes. With ongoing sleep, the homeostatic drive dissipates, and wakefulness ensues as the circadian signal intensifies in the morning. Reprinted with permission from Elsevier, Inc (Fig. 37.3; *see* discussion on p. 664).

**Color Plate 11** A 30-second epoch demonstrating an abrupt arousal from non-REM stages 3/4 sleep with subsequent movement and muscle artifact obscuring most of the underlying EEG in a patient with a history of sleepwalking. Note the absence of tachycardia, which would occur in classic sleep terrors (Fig. 37.6; *see* discussion on p. 680).

**Color Plate 12** The appearance of partial volume effects in PET images. Grey matter is fourfold as metabolically active as white matter. The *top* panel shows two transverse sections of an FDG image obtained on an older instrument, Siemens ECAT 953B, and reconstructed to a final image resolution of approximately 10 mm FWHM (left) and an FDG image from another patient, taken at approximately the same levels, obtained on a more modern instrument, Siemens Biograph 16 PET/CT, and reconstructed to a final image resolution of 5 mm FWHM (right). The *bottom* panels show coronal sections from the same patients using the Siemens ECAT 953B (left) and Siemens Biograph 16 PET/CT (right). The *left* panels show blurring of the activity in grey matter, white matter, and ventricles. The *right* panels show essentially only the grey matter ribbon, whereas the white matter and CSF are at the lower end of the color scale (blue/black). There is still some green at the interface between grey matter and white matter from some residual partial volume effects (Fig. 38.3; *see* complete caption and discussion on p. 712).

**Color Plate 13** Avicenna (Fig. 40.3; *see* discussion on p. 732).
Part I
Syndromes—Adult
The Mental Status Examination

Hagop S. Akiskal, MD

Abstract  The Mental Status Exam represents a crucial part of the psychiatric interview in that it is devoted to a systematic elicitation of psychopathologic signs and symptoms that are important in diagnosis and differential diagnosis. It is an essential tool for all psychiatrists and mental health professionals, but, in abbreviated form, it is an important tool for all physicians.

This chapter is derived from the author’s teaching experience to medical students, psychiatry residents, and family physicians, and considers both classic and modern psychopathologic concepts. It is divided into appearance and behavior, psychomotor activity, affect and mood, speech, thinking, perceptual disturbances, orientation, attention and memory, as well as reliability, judgment, and insight. Finally, common errors in mental status in clinical evaluation are discussed.

Keywords  Mental status · Psychiatric history · Psychiatric interview

This chapter is devoted to the science and art of eliciting the signs and symptoms of mental disorders. The systematic perusal of these manifestations during the psychiatric interview constitutes the mental status examination, which can be viewed as analogous to physical examinations in other branches of medicine (1).

Consider, as an example of this process, the mental examination of a 26-year-old single, white male engineering student who was brought to the hospital because of “acute sinus trouble.” He had locked himself in his apartment for a week and refused to speak to anyone. When asked about his reasons for this behavior, he stated that he did not wish other people to hear the “noise emanating from my sinuses.” The patient looked disheveled and had a frightened facial expression. Despite the psychotic content of his verbalizations, associations were grossly intact. After further questioning, he admitted that the “sinus noise” actually consisted of “voices, as if a transistor was installed up there in my head.” The voices that were of the greatest concern to him argued in the third person about whether or not he was a “female.” He was tremulous and restless during the interview, and, on one occasion, he walked to a mirror and began to examine his facial features; with great reluctance, he admitted that he was being transformed into a woman, as the voices implied. At one point, he became hostile and threatened to take legal action against a surgeon who, he believed, had “implanted a device” into his sinuses during an operation for a deviated nasal septum 8 months earlier; he added that, subsequent to this operation, he had intermittently experienced “foul smells,” which, like his thoughts, had been “implanted from outside.” All of these manifestations occurred in clear consciousness, without evidence of disorientation or memory disturbances.

To arrive at a diagnostic formulation, the examiner considers the signs and symptoms observed during the mental status examination in combination with information obtained from the psychiatric history. In this case, the diagnosis of paranoid schizophrenia was suggested by lifelong traits of seclusiveness, suspiciousness, and litigiousness; the absence of a history of substance abuse; and persistence of this clinical picture for longer than 6 months in the absence of major mood symptoms. Laboratory studies (e.g., negative urinary drug screen for stimulants and a normal sleep-deprived electroencephalogram [EEG]) were used to exclude, respectively, the remote possibility of stimulant-induced psychosis or complex partial (temporal lobe) seizures as the basis for his presenting complaints. Such physical workup to exclude somatic contributions is often a necessary step in psychiatric presentations with complex symptomatology, especially in patients with first psychotic breakdowns (2,3). The presence of a positive family history for schizophrenia in a paternal cousin provided further support for a schizophrenia diagnosis.

Thus, the diagnostic process in psychiatry is analogous to that used in other branches of medicine: personal history, family history, examination, and laboratory tests constitute the essential steps. Because the raw data of psychopathology are often subjective and may elude precise characterization,
the mental examination is of particular importance in psychiatry. Accurate description is difficult to obtain without careful and skillful probing during face-to-face interviews. The faithful description of subjective experiences in psychiatry, known as *phenomenology*, was perfected by the German psychiatrist Karl Jaspers (4). His approach differs from that of Freudian psychodynamics, which concerns itself with the unconscious meaning and interpretation of symptoms. In contrast to the Freudians, who focused on the content of psychopathology, hypothesized to arise from early life situations and current interpersonal distortions, Jaspers thought that phenomenology—by its emphasis on the form of psychopathologic experiences—would eventually disclose “primary” symptoms, which are closest to the neurophysiologic substrate of the illness and that would, therefore, carry the greatest diagnostic weight. For instance, in the case of the engineering student, the fact that he heard voices arguing about him in the third person is more important *diagnostically* than what those voices said about him (that he was a woman). The latter can variously be interpreted psychodynamically or by some other theoretical frame of reference, which pertains to the *formulation* of the case, not formal diagnosis.

A detailed mental status examination constitutes an area of psychiatric expertise, but, in briefer format, it is an essential tool for all physicians. A brief mental status examination should be performed as part of the routine physical examination on all patients. When indicated, this should be followed by a more detailed mental examination.

1. The Importance of Signs and Symptoms in Psychiatry

Precision in the use of clinical terms to describe signs and symptoms is essential in all branches of medicine, promoting professional communication and preparing the ground for differential diagnostic workup. Imagine, for instance, what would happen if a patient with hemoptysis was erroneously described as having hematemesis. This would certainly confuse one’s colleagues regarding the medical status of the patient and could lead to an inappropriate series of diagnostic procedures. One can cite many other examples, such as jaundice versus pallor, ascites versus obesity, a functional versus an aortic stenosis murmur, which can all lead to difficulties in differentiation. In brief, genuine difficulties in eliciting, describing, and differentiating the myriad signs and symptoms that characterize diseases occur in all branches of medicine. Psychiatry is certainly not immune to such difficulties, but the belief—regrettably voiced by some medical educators—that differential diagnosis in psychiatry is haphazard and unproductive is both unfounded and dangerous. It is such attitudes that often lead patients with “functional” complaints to be labeled as “cricks,” without the benefit of appropriate diagnostic evaluation. They may be viewed as having “imaginary” somatic complaints that waste the physician’s time. The potential dangers of such attitudes can be seen in a study in the *Annals of Internal Medicine* (5), which reported that the majority of a sample of completed suicides in St. Louis were seen by physicians within 6 months before their deaths; not only was the depressive nature of their ailment missed, but sedatives, in lethal quantities, were prescribed for their complaints of disordered sleep.

Although physicians typically spend many years mastering the art and science of physical diagnosis, little attention is given in medical education to the mental status examination. Many physicians are unaware that there exist systematic rules—alike to those used in physical diagnosis—that can serve to assess mental status. Moreover, it is seldom recognized that the failure to distinguish, for instance, whether a patient is sedated or depressed can be as grave as the failure to distinguish between dyspepsia and angina: just as angina can be the prelude to myocardial infarction, unrecognized depression can be the prelude to jumping out of the hospital window.

The mental status examination is not just common sense or an expression of humane attitudes that assist the physician in empathizing with the patient while probing his inner experiences. Good judgment in complex human situations (an uncommon form of common sense!) and an approach that considers the patient in his or her totality are not the sole prerogative of psychiatry, they are important in all branches of medicine. These attitudes merely set the stage for the practice of the clinical principles that constitute the body of scientific knowledge in any field. In psychiatry, there are established rules in the use of phenomenologic terms to arrive at diagnostic formulations that are the product of nearly 200 years of systematic clinical observation (6, 7). International consensus and standardization have now been reached on the description and clinical probing of psychopathologic experiences as exemplified in the World Health Organization development of the Schedule for Clinical Assessment in Neuropsychiatry (SCAN) (8). The SCAN covers in depth all facets of psychopathology. The Mini-Mental Status Examination (9), widely used at the bedside, is another more focused interview.

2. Special Problems in Psychiatric Phenomenology

Admittedly, there are many difficulties in the application of psychiatric terms and concepts. These fall into several categories.

Many psychiatric phenomena are subjective and do not easily lend themselves to objective description. For instance, one of the author’s patients described herself as being “transformed into a pig” while looking in the mirror. Here, the patient’s verbal report is the only evidence for the occurrence of this experience. It is important to record such symptoms—in the patient’s exact words—to decide whether the incident
is indicative of incipient schizophrenia (psychotic depersonalization in which the self changes) or primary mood disorder (a depressive delusion that one is as ugly and dirty as a pig). This patient, who had no family or personal history of mental illness, suffered from a psychotic major depressive episode. She also saw herself in a coffin and heard voices commanding her to cut her throat with a butcher knife. She recovered fully after a course of electroconvulsive therapy (ECT).

The concepts used in psychiatry are not readily susceptible to the same kinds of external validation that are used in other branches of medicine (e.g., laboratory data). Psychiatrists often rely on family history, treatment response, and prospective course in validating diagnostic decisions made during cross-sectional examination. For instance, in the case just described, the response to ECT and the full recovery from the psychotic episode strongly favor the affective diagnosis. There has been considerable momentum in attempting to link psychopathologic events with biologic correlates (10). Although no single biologic finding has yet been accepted universally as an unambiguous marker for a specific psychiatric syndrome, several sleep laboratory and neuroendocrine indices can sometimes now be used—along with more traditional approaches—in elucidating diagnostic dilemmas (11–13). These biologic markers, then, are not meant to substitute for clinical judgment, but to supplement it in difficult differential diagnostic decisions.

These foregoing considerations pertain to the external validation of the so-called “functional” psychiatric syndromes. Laboratory tests are, of course, used in differentiating general medical and central and peripheral nervous system diseases that are known to produce psychiatric disorders from those in the absence of such ostensible etiology. Unfortunately, at this writing, despite massive and continued research efforts along the lines of genetic and brain imaging techniques, no specific laboratory tests exist for the diagnosis of common mental syndromes without known organic lesions. Psychiatric diagnosis at the present remains quintessentially a clinical endeavor based on the clinical acumen of the examiner at the bedside or in the clinic.

Mental health professionals themselves have, at times, been imprecise in the use of psychopathologic terms and concepts. This situation, however, has improved with the advent of modern pharmacotherapy and biologic psychiatry, in which syndrome-specific treatments, such as mood stabilizers, selective serotonin reuptake inhibitors (SSRIs), antipsychotics, and anxiolytics, dictate precise diagnostic evaluation and the course of illness.

Being awarded a doctorate in medicine does not automatically confer to the recipient the art of communication. Given the life-and-death nature of their endeavor, medical students—perhaps more than any other group of professional students—should endeavor to develop the proper habits of precise expression. I am not referring to literary flair—though that would be admirable—but clarity of prose.

3. Recording Signs and Symptoms in Psychiatry

Signs refer to the clinician’s observations of the patient. Symptoms, on the other hand, represent the subjective complaints of the patient based on his verbal report. For instance, agitation is a sign, based on the observation of motor restlessness, pacing, pulling one’s hair, and so on. Auditory hallucination is a symptom typically based on patient report. Signs assume major significance when the patient is mute, stuporous, confused, or reluctant to talk. Whenever feasible, one should try to corroborate symptoms with other observations. There are several ways to accomplish this:

Recording overt behavior that is consistent with the symptom. For instance, does the patient who reports hearing voices appear preoccupied—perhaps numbing to himself in an attempt to answer the voices? More gravely, the patient may obey the commands given by voices. Likewise, the presence of a delusion can be inferred from behavior that results from it. For instance, a patient who believes himself to be persecuted by the Mafia may decide to move to another town.

Recording historical data consistent with the symptoms. Often patients’ reports suggest corollary data that can be confirmed or refuted by other information obtained from the patient or their significant others. For instance, in the case of a patient who reports loss of ability to derive pleasure from life (anhedonia), one may question his wife as follows: Does he indulge in his hobbies? Does he engage in sexual activities that he previously enjoyed? For the patient who complains of loss of appetite, one might inquire whether he had lost weight or whether his clothes are large on him.

Recording other subjective experiences correlated with the symptom. In some situations, this is indeed the best validation. For instance, the report of homosexual orientation or preoccupation can be assessed in terms of masturbatory fantasies. In this instance, it is known that homosexual masturbatory fantasies may be more valid indicators of homosexuality than, say, incidental same-sex activity.

Physiologic monitoring. In some situations, a precise physiologic measure can be recorded to substantiate a symptom. The subjective complaint of insomnia, for instance, can be measured with all-night sleep polygraphy (14). This is important because many complaints of insomnia are vague. Neurophysiologic evaluations in sleep laboratories have indeed found that some “insomniacs” actually sleep as long and consistently as people without sleep complaints. Other insomniacs manifest delayed latency to sleep and frequent awakening in the first part of the night (as is characteristic of anxiety disorders). Others manifest early appearance of the first period of rapid eye movement and frequent awakening in the middle and terminal part of

1. The Mental Status Examination

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sleep (as is characteristic of clinical depression). Finally, other sufferers of insomnia may exhibit specific physiologic changes that characterize specific sleep disorders, such as restless leg syndrome and nocturnal myoclonus.

A cardinal rule in recording psychopathologic phenomena is to distinguish clearly those phenomena that are based on history, direct observation, or patient report from inferences that one may derive from such phenomena. For instance, the clinician should avoid describing a patient as engaging in “massive projection,” when what the patient said was “everyone hates me.” The patient’s actual report should appear in quotes in the mental status proper, whereas the inference of “projection” (if made plausible by other evidence) is best reserved for psychodynamic formulation (15). Thus, the mental status examination should be free from speculation: it should be a record of the patient’s mental condition as described by the patient and as observed by the clinician.

Aristotle has said that some phenomena, such as colors, can only be defined by pointing at them. This is also true of many manifestations of psychopathology that can be learned only in reference to actual patients. Hence, the definitions offered in the following sections are merely a guide for a more intensive patient-based study. Moreover, this is not an exhaustive list of approaches and terms used in mental status examinations. The differential diagnoses of signs and symptoms discussed throughout this introductory chapter will selectively focus on those concepts that have special diagnostic significance and that seem to be particularly problematic for trainees.

4. Conduct of the Mental Examination

The areas covered in the mental status examination are summarized in Table 1.1. Although flexibility is necessary to allow for special circumstances presented by individual patients, a complete psychiatric examination generally should cover all of these areas and is conventionally written up (if not conducted) in the order outlined.

| Table 1.1. Mental Status Examination outline. |
|----------------------------------------------|------------------------------------------|
| **Areas**                                   | **Observations**                         |
| Appearance and behavior                     | Attire, grooming, appears to be the stated age?, posture, facial expression, eye contact |
| Attitude toward interviewer                | Friendly, cooperative, seductive, ambivalent, hostile |
| Psychomotor activity                        | Normal, retarded, accelerated, agitated, catatonic symptoms |
| Affect and mood (emotional state)           | Euthymic, irritable, anxious, labile, inappropriate, blunted or flat, depressed, elated |
| Speech and thinking                         | Process or form: coherent, circumstantial, pressure of speech, flight of ideas, derailment (loose associations) Content: phobias, obsessions, compulsions, delusions, suicidal/homicidal ideations* Specific speech disorders: echolalia, perseveration, mutism, aphonia, aphasia |
| Perceptual disturbances                    | Illusions, hallucinations, depersonalization, derealization |
| Orientation                                | Time, place, person situation             |
| Attention (concentration) and memory        | Digits forward and backward, serial 7, street address, recall of three objects, amnesia |
| Intelligence                               | Abstraction, vocabulary, global clinical impression of IQ |
| Reliability, judgment, and insight         |                                         |

* Changes provided by the editor.

Patients presenting problems generally dictate the types of questions asked and the length and depth of interview. Research clinicians often conduct extensive structured interviews using specific probes for a standardized assessment of individual signs and symptoms. Practicing clinicians have traditionally conducted more or less unstructured interviews that provide for flexibility to tailor questions to the particular situation of the individual patient. Current experience indicates that when major mental illness is suspected, much can be gained by combining the virtues of these two approaches in a semistructured format. This way, one would conduct a full examination to inquire about areas that an unstructured interview could easily miss while at the same time providing flexibility to follow the patient’s leads and to frame the questions as best understood by that patient. When conducting an interview, beginning students should have available for quick reference an outline of the mental status examination as well as the specific signs and symptoms most relevant to the differential diagnosis at hand. A pocket copy of the mini-Diagnostic and Statistical Manual, 4th edition, text revision (DSM-IV-TR) (2000) (16) is useful for this purpose; another useful guide is Goodwin and Guze’s Psychiatric Diagnosis (17).

It is not necessary to conduct all parts of the interview with the same depth on all patients. For instance, one need not directly check the orientation, vocabulary, and calculating ability of a moderately anxious young university professor who seems to be in good contact. Nor is it necessary to inquire extensively about bizarre psychotic experience when interviewing a diabetic patient who presents with the chief complaint of difficulty in attaining erections. Experience teaches one when such shortcuts can be made. The examiner must at times forego inquiry into a given area out of consideration for the patient, who may be unwilling or too uncomfortable to talk about certain topics; if the omitted area is of major significance for differential diagnosis, one should endeavor to obtain collateral information from significant others or return to questioning the patient at a later time, using a more indirect approach. There are situations in which one should conduct the mental status in multiple brief encounters, as in the case of extremely disturbed, violent, psychotic, or semistuporous
patients, attempting to glean the optimal amount of information necessary for a tentative diagnosis.

5. Areas of the Mental Status

The mental status typically begins with a statement regarding the setting in which the examination was conducted (e.g., inpatient or outpatient, private or public institution) and the purpose for which it was done (e.g., initial evaluation for outpatient treatment, disability determination, consultation for another physician). It typically follows with a careful review of all existing records and proceeds with the areas described below.

5.1. Appearance and Behavior

Although this is the first section of the mental examination, relevant data are gathered throughout the interview process. Attire, posture, facial expression, and the level of grooming are described in such a way that the person reading the narration can visualize the patient’s physical appearance at the time of the examination. It is important to note any obvious physical signs or deformities that point toward medical disease. The chronically ill and those experiencing severe depression may look older than stated age; by contrast, hypomanic, histrionic, and hebephrenic individuals may look younger. Poor eye contact may indicate shame, embarrassment, anxiety, social anxiety, or paranoid traits. In some cases, little will be revealed in this section beyond the fact that the patient’s physical appearance was unremarkable compared with other individuals of the same age, educational level, and socioeconomic status. In other instances, the general observation may provide important clues regarding the patient’s personality, mood, thought, awareness of social conventions, and ability to function adequately within society.

5.2. Attitude Toward the Interviewer

The patient’s attitude toward the interviewer is often evident without specific inquiry, simply by ongoing observing of the patient throughout the interview. Some patients relate easily, are open and cooperative, and reveal plenty of information without much probing. Others may be reticent, guarded, or even suspicious—too embarrassed, unwilling, or frightened to share personal experiences. Some may be overtly hostile, even attempting to embarrass or humiliate the examiner; in the extreme, the patient may be uncommunicative or openly belligerent. Some patients are obsequious, trying to flatter the examiner, emphasizing how competent he is compared with all previous doctors, who “do not seem to care.” Others may display ambivalence, a term that refers to the simultaneous presence of “incompatible” emotions (positive and negative). Still others may be overtly seductive. Clinical experience teaches the clinician how to interview these different kinds of patients. The two extremes of aggressive and seductive behavior represent the greatest challenge for clinical interviewers. Faced with such behaviors, the interviewer must set limits and maintain objectivity without losing empathy.

5.3. Psychomotor Activity

Psychomotor activity refers to physical activity as it relates to psychological functioning. A patient who displays “psychomotor agitation” moves around constantly, cannot sit still, and often shows pressure to talk. One may observe hand wringing, shuffling of feet, crossing and uncrossing of knees, picking on scabs, scratching, nail biting, hair twisting, and even hair pulling. One must contrast such purposeless physical restlessness with the more patterned psychomotor acceleration, in which the patient is extremely “busy”, engages in many activities, talks incessantly by jumping from topic to topic, and experiences rapid thought progression. In the extreme, both agitation and acceleration may lead to frenzied activity that can be debilitating. In fact, before the availability of electroconvulsive and neuroleptic treatments, some of these patients died of sheer exhaustion. In other patients, one observes psychomotor retardation, in which there is a general slowing of movement, speech, and thought progression. Here, the patient may sit in a slumped, often frozen posture; speech is slow, monosyllabic, and of low pitch, accompanied by few gestures; and facial expression is either sad or blank. For such patients, talking may seem to be an effort, and latency of response to questions is typically prolonged. In some conditions, such as mixed states of affective psychosis, psychomotor agitation and retardation can be present, i.e., physical slowing with racing thoughts simultaneously; these patients are often suicidal (18). Abnormal psychomotor activity on repeated examination is usually indicative of a major psychiatric disorder. Quantitative rating of psychomotor function is now possible through the use of the reliable scale developed by Widlöcher and his team at the Salpêtrière Hospital in France (19). Despite proposals to develop physiologic measures of speech pause time and abnormalities of facial expression of emotions (20), this area still very much relies on qualitative judgments made by experienced clinicians. In other words, there is no objective test to determine whether the facial expression of a patient is one of fear, depression, anger, or elation (21). Darwin (1998) wrote extensively about the evolutionary significance of emotions. His book, recently reprinted, remains the classic on the topic (22).

Other forms of psychomotor disturbances that occur in psychotic states include “posturing,” “stereotyped movements,” “mannerisms,” “negativism” (doing the opposite of what is requested), echopraxia (imitating the movements of another person), and “waxy flexibility” (maintaining certain awkward positions despite apparent discomfort). In the extreme, such manifestations may progress to stupor,
which represents an extreme degree of psychomotor retardation and mutism combined. The condition is sometimes observed on the battlefront or in civilian catastrophes, where the victim may be “paralyzed by fear.” In the absence of such history, organic contributions should be excluded by EEG, various brain imaging techniques, lumbar puncture, and other laboratory tests. Once this is done, intravenous Amytal may help in differentiating depressive from schizophrenic stupor; the schizophrenic patient will momentarily come out of his state of inactive mutism, and express delusional thoughts, for example, that he dare not move because his weight “would tilt the balance of the earth and bring the end of the world.” The two conditions may be further distinguished clinically by the presence of urinary incontinence, catalepsy (increased muscle tension), and expressionless facies, all of which are more suggestive of catatonic schizophrenia than of depression.

5.4. Affect and Mood

Affect is the prevailing emotional tone during the interview, as observed by the clinician. One must describe whether the patient exhibits an appropriate range of affect, which varies with the theme of the conversation and may include fear, sadness, and joy. In the case of marked disparity between affect and thought content, one speaks of inappropriate or “incongruent affect.” Other commonly observed disturbances of affect include tension (or inability to relax), panic (a crescendo increase in fear), anger (a predominantly argumentative or hostile stance), “lability” (rapid shifts from happiness to sadness, often accompanied by giggling, laughing, or, conversely, sobbing and weeping), and “blunting” or flattening (minimal display of emotion, with little variation in facial expression). In addition to the observed disturbances of affect, the clinician also must record the mood, or subjective feeling state, reported by the patient over the preceding several days or weeks. The most common moods reported by patients are depression (i.e., feeling in “low spirits” or “down in the dumps”) and anxiety, a feeling of apprehension whose source remains undefined. When irritability is the prevailing mood, the patient may report having a “short fuse.” In “euphoria,” the mood is one of extreme elation and jubilation that is not justified by objective circumstances. These self-reports will not necessarily coincide with the observed affect. For instance, some patients may have a gloomy, downcast expression, yet vigorously deny experiencing depressed mood; conversely, patients who do not show prominent signs of emotional distress may report a pervasive gloom. Such lack of concordance between subjective report of mood and observable affect and behavior is not uncommon in both normal and psychopathologic states (23). In the absence of specific disturbance in affect or mood, the patient is described as “euthymic.”

5.5. Speech and Thought

In this section, the examiner describes the patient’s verbal communication and its disturbances. Thought form (or thought process) refers to how ideas (or associations) are put together in an observed sample of speech and in what sequence and speed. A patient exhibiting no abnormality in the formal aspect of thought is said to have intact associations, coherent thought that is clear, logical, and easy to follow and understand. In “circumstantiality,” there is a tendency to answer questions in terms of long-winded details. In “pressure of speech,” the patient seems to be compelled to talk, whereas, in “flight of ideas,” thoughts actually race ahead of the patient’s ability to communicate them; he skips from one idea or theme to another, and ideas may be connected by rhymes or puns (“clang association”), as shown in this address made by a patient to the psychiatrist in chief during the morning round: “Let me part soon . . . to the moon . . . moonshine is for lovers . . . the cure for lovers’ heart . . . the lure of poets . . . the doors of perception . . . a magnificent conception . . . on! on! Let me conquer the moon.”

This form of thought is most characteristic of mania and tends to be overinclusive, with difficulty in excluding irrelevant, extraneous details from the association. In the extreme, it may be hard to draw the line between manic flight of ideas and schizophrenic derailment (literally, “off the track”), in which it is impossible for the observer to glean any logical sequence from the patient’s speech. Patients with the latter degree of “loosening of associations” sometimes invent new words that have private meanings (“neologisms”). Associative slippage also may manifest in general vagueness of thinking, which is not grossly incoherent but conveys little information, even though many words may have been used. This disturbance, known as “poverty of thought,” (24), is a major diagnostic sign of schizophrenia, when known organic mental disorders have been excluded. Here is a sample from a letter a high school student wrote to the psychiatrist in response to the question why he was in the hospital: “I often contemplate—it is a general stance of the world—it is a tendency which varies from time to time—it defines things more than others—it is in the nature of habit—this is what I would like to say to explain everything.”

Bleuler (1950) coined the term autism to refer to the self-absorption that he thought characterized schizophrenic thought, feeling, and behavior (25). Thinking that is governed by inner drives and a “private logic” is, therefore, known as autistic thinking; “dereistic thinking” is a synonym for it. Current evidence indicates that such thinking may actually reflect, in some cases, reactive reduction of left cerebral density (26).

Echolalia, most commonly observed in catatonia, is the irrelevant, sometimes playful, repeating of words used by the interviewer (e.g., “What day is today?” “Today”). In “perseveration,” also seen in catatonia, as well as in chronic organic mental disorders, the patient adheres to the same concept or words and appears unable to proceed to others. “Thought
block” refers to the sudden arrest of thought in the middle of a sentence, often followed, after a momentary pause, with a new and unrelated thought. When mild, this experience may be caused by exhaustion, anxiety, or depression; severer degrees are seen in schizophrenia, in which they may be the observable counterpart of the subjective experience of thought withdrawal. Mutism consists of the loss of speech and can be intentional in origin (as part of a dramatic cluster personality disorder) and limited to interactions with certain people (elective mutism) or involuntary (as part of catatonia or midline lesions of the brain). In aphasia, owing to dominant temporal lobe lesions, the patient has a specific memory disorder for words and language; even when unable to talk, the patient usually attempts to communicate by other methods. In dysphonia, the patient loses his voice and cannot raise it beyond a whisper, which, in the extreme, can proceed to aphonia; here, in contrast with mutism, one can observe lip movements or nonverbal attempts to communicate. Unless based on laryngeal pathology or excessive use (i.e., as in teachers) or abuse of vocal cords (as seen in voluntary manics), these deficits in phonation are almost always caused by a conversion disorder, representing, for example, a compromise in an adolescent who feels conflicted between lying and telling her parents the truth about sexual behavior of which they would strongly disapprove.

Common abnormalities of thought content include obsessions (repetitive ideas, images, or impulses that intrude into consciousness unwanted, yet patients are aware that these thoughts are their own), compulsions (irresistible urges to engage in apparently meaningless acts), and phobias (irrational fears unjustified by objective circumstances). Phobias are usually categorized by the circumstances eliciting them, such as social phobia (a common form of which consists of fear of facing a group in a lecture situation), agoraphobia (fear of going out alone in public places), acrophobia (fear of heights), etc.

Two obsessions that commonly torment neurotic patients are the unwanted idea that one might inadvertently harm or kill loved ones and that one could be contaminated by germs, dirt, excreta, or other undesirable elements. The latter obsession is typically associated with cleaning compulsions or rituals to rid oneself of such elements. The unwanted idea (obsession) that one might inadvertently hurt loved ones does not ordinarily lead to taking action; instead, it may be associated with the ritual of hiding away knives, scissors, other sharp objects, etc. Thus, obsessions with aggressive content should be distinguished from homicidal ideation or threats, which do carry some likelihood of being carried out. The clinician must likewise distinguish between an obsession with self-injury content and suicidal ideation. The former refers to the tormenting thought that one might, contrary to one’s value system, hurt or kill oneself. However, in other patients, the pain of depression can be of such a magnitude that the normal barriers that prevent one from taking one’s life do break down, and, thus, suicidal thoughts can lead to suicidal action; suicidal ideation is a particularly ominous symptom if associated with loss of hope for the future (hopelessness). Such patients should be carefully monitored to prevent suicide (27). Therefore, the clinician should always inquire about suicidal ideation and suicidal plans (as well as current and past attempts and their outcome); the notion that one thereby inadvertently “puts thoughts into the patient’s head” is unfounded; on the contrary, patients are typically relieved that the physician is aware of their mental suffering and could provide appropriate measures to terminate it. It is also important to realize that not all depressed patients actively contemplate suicide; instead, this propensity may be expressed more passively as a general feeling that life holds little meaning for them (tedium vitae) and that they would prefer not to wake up in the morning, or that they would welcome a fatal disease or an accident. It is incumbent on the psychiatric examiner to explore such possibilities with circumspection and sensitivity.

“Delusions” are common abnormalities of thought content among psychotic patients. They are defined as false beliefs that are unshakable and idiosyncratic to the individual. Thus, the beliefs of a delusional patient cannot be typically undone by logical arguments to the contrary, as illustrated in the following vignette.

An African American female inpatient, admitted to an emergency psychiatric service, believed that she was Jesus Christ. When questioned by a nursing trainee how this was possible, given that Christ was male, white, and Jewish, the patient responded with a smile: “The Bible is wrong.” The examiner in this instance was lucky to elicit a mere smile; delusional beliefs are often associated with more vehement reactions. Therefore, they should be probed with the requisite tact and sensitivity on the part of the examiner, especially when they involve race, sex, and religion.

It is also important to keep in mind that the idiosyncratic nature of delusional beliefs means that they are not shared by members of the same culture or subculture. For instance, the belief that one is sexually “voodooed” and will not regain one’s potency until the spell is lifted is not necessarily delusional; neither are beliefs in unusual health practices and folk remedies. The decision of whether one is dealing with a culturally accepted phenomenon must be based on a thorough knowledge of a given culture or subculture. To complicate matters, in cultures in which voodoo and witchcraft are part of daily life, delusions may sometimes represent pathologic elaborations of such beliefs. The definitive test is whether an unusual belief is shared by members of the patient’s subculture. Delusions also must be differentiated from “overvalued ideas,” which are fanatically maintained notions, such as the superiority of one sex, nation, or race over others, and although not necessarily an indication of clinical pathology, such ideas may, in the extreme, suggest the diagnosis of a personality disorder described by the German psychiatrist Kurt Schneider as a “fanatical psychopathy” (28).

Delusions are categorized as “primary” or “secondary.” Primary delusions cannot be understood in terms of other
psychological processes. The most common examples of these are represented by Schneider’s first-rank symptoms (29), which consist of externally imposed influences in the spheres of thought (“thought insertion”), emotion, and somatic function (“passivity feelings”), as well as experiences of “thought withdrawal” and “thought broadcasting”; hence, they are also known as delusions of control or delusions of influence. Primary delusions may arise in the setting of what is termed delusional mood, in which the patient is gradually losing his grasp of reality: neutral percepts may suddenly acquire special personal or revelatory significance of delusional proportion (e.g., a red car being seen as an indicator of imminent invasion by communist forces). This two-stage phenomenon, known as delusional perception, is also considered a first-rank symptom. Although one or two Schneiderian symptoms may be seen in severely psychotic affective—especially manic—patients (30,31), the presence of a large number of such symptoms usually points toward schizophrenia (32,33), provided that stimulant-induced psychosis, complex partial (temporal lobe) seizures, and alcoholic hallucinosis are excluded.

Secondary delusions derive from other psychopathologic experiences and occur in a variety of psychiatric disorders. Delusions may be secondary to:

Hallucinations—the patient hears the voice of his deceased mother and concludes that he must be dead too
Other delusions—the patient believes that he is being persecuted by others, may decide that he must be the messiah
Impaired memory—a patient with general paresis of the insane (tertiary syphilis) who, unable to remember where she had placed her purse, repeatedly called the police to report that her neighbors were robbing her
Morbid affective states—these are sometimes referred to as affective delusions and arise from the prevailing mood—usually depression—and the associated guilt, low self-esteem, and insecurity (33)

Delusions can take the form of delusions of guilt or sinfulness (the belief that one has committed an unpardonable act), delusions of jealousy (false belief in infidelity of spouse or lover), hypochondriacal or somatic delusions (i.e., delusions of ill-health), nihilistic delusions (the belief that parts of one’s body are missing), and delusions of poverty (the belief that one has lost all means and family members will starve).

Other delusions secondary to affective states include delusions of reference (the idea that one is being observed, talked about, laughed at, etc.), erotomania (in which the patient believes that a famous person is in love with him or her), and grandiose delusions (belief that one has unusual talents or powers or that one has the identity of a famous person).

Although erotomania and grandiose delusions often arise in the setting of expansive mood, one can usually find clinical evidence for underlying low self-esteem or depression. Delusions of reference can occur in affective, schizophrenic, as well as organic psychoses. In what is termed delusions of assistance, the patient believes oneself to be the object of benevolence from others or supernatural powers; for example, a manic woman, who had run away from her ex-husband’s harassment, stated that chariots were being sent to transport her and her children to heaven. In the more common persecutory delusions, the patient believes himself to be the target of malevolent action; this may be caused by the conviction that one is somehow guilty and deserves punishment, or it may result from a grandiose self-concept; in other cases, the patient may be misattributing his hostile impulses to his presumed persecutors.

5.6. Perceptual Disturbances
The simplest form of perceptual aberration is represented by an illusion, often in the visual sphere, in which real stimuli are mistaken for something else (e.g., a belt for a snake in a dimly lit room). Such misinterpretation can be secondary to exhaustion, anxiety, altered states of consciousness, delirium, or a functional psychosis.

Hallucination, a more serious perceptual disturbance, consists—in Esquirol’s definition—of a perception without external stimulus (34) (e.g., hearing voices when nobody is around, seeing things that are not there, or perceiving unusual odors and tastes). In synesthesia, observed in psychedelic intoxication, the perceptual disturbances are in more than one sensory modality, and the subject “hears” colors, “smells” music, etc. For example, Baudelaire, the French poet whose drug experimentation was well known, wrote about the color of vowels: “A noir, E blanc, I rouge, U vert, O bleu” (i.e., A = black, E = white, I = red, U = green, and O = blue).

Auditory hallucinations are classified as either elementary (noises) versus complete (voices or words). They are commonly reported by schizophrenic patients, but they also occur in organic mental disorders and drug intoxication or withdrawal. Some patients in the initial stages of a psychotic breakdown report hearing their own “thoughts spoken aloud” (écho de pensée); at a later stage, voices lose their connection with the person and seem to be coming from outside, making a “running commentary” on the patient’s behavior or arguing about him in the third person. These are all special categories of hallucinatory phenomena included in Schneider’s list of first-rank symptoms (29). They occur in a variety of psychotic disorders, but, when they are extremely pronounced or continuous, they suggest schizophrenia. Typically, Schneiderian hallucinations are considered to be “mood-incongruent” in that they have no plausible link to the patient’s state of mood. Other hallucinations also can be “mood-congruent”; these are observed in the affective psychoses, in which voices make derogatory statements about the patient, usually in the second person (“You are a jerk”) or give self-destructive commands (“Slit your throat”). Perceptual disturbances that occur in affective illness tend to be transient and typically occur at the depth or height of an affective episode or during the unstable neurophysiologic transition (mixed state) from depression to mania. They also can arise from the exhaustion, dehydration,
or superimposed drug or alcohol abuse that often complicates affective disorders; these complications explain, in part, why mood-incongruent psychotic experiences are occasionally seen in otherwise classic affective psychoses (33).

Visual hallucinations are most characteristic of organic mental disorders, especially acute delirious states. Sometimes they are “Lilliputian” (less than life-size); they may coexist with auditory hallucinations and can be frightening. Visual phenomena associated with psychedelic drugs can be pleasant or frightening, depending on mental set. Visual hallucinations, sometimes elicited from manic patients, are not characteristic of schizophrenia but can occur in normal grief (visions of a dead relative), in depressive psychoses (e.g., seeing oneself in one’s casket), and in brief reactive psychoses observed in abnormal personalities. “Hypnagogic” and “hypnopompic” hallucinations are visual experiences that occur in twilight state between sleep and wakefulness, occurring, respectively, when falling asleep and waking up. Although their occasional occurrence is normal, repeated experiences, especially when associated with sleep paralysis and sudden loss of muscle tone under emotional arousal (cataplexy), are cardinal manifestations of narcolepsy, representing rapid eye movement intrusions into consciousness. Other circumstances that can provoke visual hallucinosis include sensory deprivation (e.g., after cataract surgery), delirium, and other organic mental disorders (35). Histrionic personalities may give flamboyant accounts of “perceiving” objects or events that fit their fantasies. All of these manifestations must be distinguished from perceptual disturbances, in which objects may seem to get larger or closer (macropsia) or smaller and recede into space (micropsia), which are special forms of illusory phenomena that occur in retinal detachment, disorders of accommodation, posterior temporal lesions, and psychedelic drug intoxication. Finally, psychedelic drugs can produce impression of extremely vivid colors with geometric patterns known as kaleidoscopic hallucinations.

Olfactory hallucinations may be difficult to distinguish from illusions. For example, a woman with low self-esteem might be preoccupied with vaginal odor and might misinterpret neutral gestures made by other people as indicative of olfactory disgust. In complex partial seizures of temporal lobe origin, hallucinations of burning paint or rubber might present as auras.

Haptic hallucinations (hallucinations of touch) are usually experienced as insects crawling on one’s skin (known as formication) and characteristically occur in cocaine intoxication, amphetamine psychosis, and delirium tremens owing to alcohol or sedative-hypnotic withdrawal. In schizophrenic disorders, they may take such bizarre forms as orgasms produced by invisible objects or creatures. Tactile hallucinations must be distinguished from extreme tactile sensitivity (hyperesthesia) and diminished sensitivity (hypesthesia), both of which can occur in peripheral nerve disease as well as in conversion disorders.

Vestibular hallucinations (e.g., those of flying) are seen most commonly in organic states, such as delirium tremens and LSD psychosis, and may result in serious injuries when, for example, the subject attempts to fly off a roof. In hallucinations of presence, most commonly reported by schizophrenic, histrionic, or delirious patients, the subject senses the presence of another person or creature who remains invisible. In extracampine hallucinations, the patient sees objects outside the sensory field (e.g., behind his head), whereas in autoscopy, the patient visualizes himself projected into space. The latter phenomenon, which can occur in organic, conversion, depressive, and schizophrenic disorders, is also known as Doppelganger, или seeing one’s double, and is skillfully portrayed in Dostoevski’s novel, The Double.

Other perceptual disturbances that cannot be classified easily into specific sensory modalities include depersonalization (the uncanny feeling that one has changed), derealization (the feeling that the environment has changed), déjà vu (a sense of familiarity with a new perception), and déjà entendu (the feeling that a new auditory perception has been experienced before). As isolated findings, these can occur in normal people who are anxious, tired, or sleepy, but repeated experiences along these lines indicate the following differential diagnoses (36): complex partial seizures, panic disorder, schizophreniform psychosis, hysterical dissociation, and psychedelic intoxication.

5.7. Orientation
In this section, the clinician records whether the patient knows who he or she is (orientation to person), the place of the interview (orientation to place), the purpose for being there and the nature of the interview (orientation to situation), and, finally, what date and time of day it is (orientation to time). One who is orientated in all spheres is considered to have a “clear sensorium.” Patients with affective and schizophrenic psychoses are not typically disoriented (although, because of apathy, they may fail to keep track of daily routines), whereas patients who suffer from organic mental disorders are characteristically disoriented in some or all the above areas. In acute brain disease, patients often show remarkable fluctuation in orientation depending on time of day, with worsening disorientation at night. With increasing severity of brain impairment, the patient is totally confused regarding orientation, and the sensorium may be clouded at all times to such an extent that, in the very extreme, he may lapse into an organic stupor.

5.8. Attention (Concentration) and Memory
The patient who shows deficits in attention or concentration is often unable to filter relevant from irrelevant stimuli as they pertain to the interview material and, thus, may be easily distracted by the TV, telephone, and other background stimuli. A patient with a milder disorder may be able to achieve the attention required for a successful interview but may complain
that his or her mind is “not working.” Care must be taken to
distinguish between deficits in attention, which are involun-
tary, and lack of cooperation; an example of the latter would
be a patient who whistles instead of answering questions
that are being posed. Attention and concentration are usually
tested by digits forward and digits backward (“Can you repeat
7248 forward? Can you repeat it backward?”). A related test
is serial sevens (i.e., subtracting 7 from 100 and from each
successive remainder); in using this test, the observer needs to
make some allowance for educational background; thus, one
might elect to start with “serial threes.”

Deficits in memory are conveniently grouped into four
types: 1) immediate, when the patient cannot even register
things one has just been told, 2) short-term, when one cannot
recall information for 5 minutes or so, 3) recent, unable to
recall the events of the past months or years, and 4) long-term,
or remote, unable to recollect what took place many years
ago. Documented deficits in immediate recall suggest serious
acute brain impairment or stupor. Less severe brain insults
tend to spare registration but can lead to deficits in short-
term memory, which can be assessed by asking the patient
to remember a street address or three unrelated items (e.g.,
“17, yellow, chair”) for 5 to 7 minutes, after making sure
that the patient fully understands the items to be remembered.
Recent memory is most likely to be compromised by chronic
organic impairment; its intactness can be tested by asking the
patient about verifiable recent events in one’s life or current
events. Remote memory is usually spared in the early course
of dementing diseases, but, at later stages, it may be impaired
to such an extent that the patient may not recognize his or
her own children. This is best tested by asking about several
historical events that someone with the patient’s social back-
ground and intelligence can reasonably be expected to be
familiar with.

Disturbances in attention, concentration, and memory
are most characteristic of organic mental disorders, yet
schizophreniform and acute affective psychoses also may
exhibit reversible abnormalities in these functions. Although
it is customary to use the term pseudodementia to refer to
this phenomenon, it seems that reversible neurophysiologic
derangements underlying these psychotic illnesses may well
be responsible for the observed cognitive deficits (37). Finally,
memory disturbances also can result from a combination of
organic insults (e.g., head trauma) and emotional causes (e.g.,
hysterical dissociation) that could lead to amnesia for events
before (“retrograde”) or after (“anterograde”) the injury. In
general, the more psychogenic in origin, the more circum-
scribed is the amnesia, and the more organic, the more global.
Retrograde amnesia for autobiographic events for variable
periods can also occur after a course of ECT.

It is beyond the scope of this chapter to consider more
formal neurocognitive testing that neuropsychologists under-
take in various localizing and diffuse brain diseases.

5.9. Intelligence

Intelligence can be indirectly inferred from the patient’s
overall intellectual performance during the mental status
examination. If deficits are grossly apparent, historical
information should be used to decide whether they have
always been present (intellectual subnormality) or developed
after a certain age (intellectual impairment). Intelligence is
commonly assessed by testing for abstracting ability. To
accomplish this, one inquires about similarities, going from
simpler comparisons (“How are an airplane and a car alike?”
) to more difficult ones (“A painting and a poem?”). The examin-
er also must pay special attention to the patient’s vocabu-
larly. Vocabulary and performance on similarities testing
depend not only on the patient’s intellectual capacity but also
on his age, social background, and educational level. For
instance, the presence of a good vocabulary and abstracting
ability, despite a third-grade education, indicates above-
average intelligence. If vocabulary and abstracting ability are
poor, allowance should be made for social deprivation. In
the absence of such factors, and especially if the patient has
a college education, the examiner must consider the possi-
bility of intellectual impairment owing to an organic mental
disorder.

Classically, organic mental disorders have been described
as involving changes in orientation, attention, memory, and
intelligence. When profound, such changes provide clinical
evidence for an underlying somatic disease. However, as indi-
cated, subtle yet measurable deficits in these mental faculties
often accompany the so-called functional psychiatric disor-
ders, and such data point to underlying disturbances in cere-
bral structures involved with these faculties, the precise nature
of which continues to elude psychiatric research. The clinici-
an also must keep in mind the not uncommon occurrence
of moderate to severe subcortical pathology or disease with
relatively intact intellectual function, manifesting instead in
profound alterations in perception, mood, and psychomotor
behavior; delusions, obsessions, phobias, depersonalization,
derealization, and related bizarre psychopathologic distur-
bances often accompany such disease (3, 38).

5.10. Reliability, Judgment, and Insight

Every mental status examination should have a statement
regarding the extent to which the patient’s report of his or
her experiences and behavior is to be considered reliable.
This assessment is largely an aggregate based on an esti-
mate of the patient’s intellectual ability, honesty, attention
to detail, and motivation. Sociopathic and histrionic individ-
uals are notoriously unreliable. “Retrospective falsification,”
commonly observed in such patients, consists of distortion of
real past experiences to conform to present emotional needs;
at other times, they may lie to avoid personal responsibili-
ties. A related type of unreliability is “pseudologia fantas-
tica,” expansive storytelling such that the individual is unable
to discern which of one’s statements are true and which are false. Psychotic patients and those with organic mental disorders also tend to be unreliable informants; here one sometimes observes “confabulation,” a spontaneous fabrication of responses to fill in memory gaps.

Judgment refers to the patient’s ability to evaluate the proper course of action in difficult situations and is traditionally tested by asking what one would do if one were the first to observe smoke in a movie theater. The patient’s history will often give clues regarding whether he or she generally has good or poor judgment. Disturbances in judgment can be circumscribed to one or more areas (e.g., money, attire, sexual conduct), leaving other areas, such as maternal role, intact. “Insight” pertains to a more complex form of judgment regarding the patient’s awareness of his or her emotional state, its causes, its severity, and its impact on significant others. Psychotic patients, especially in mania, notoriously lack insight and are often unaware of the painful consequences of their spending sprees and sexual promiscuity, which explains, in part, their frequent lack of cooperation with treatment regimens.

6. Common Errors in Mental Status Examination

Eugen Bleuler’s work on schizophrenia (25) continues to exert a major influence in the description and differential diagnosis of schizophrenic manifestations. Bleuler thought that disturbances in associations, affect, ambivalence, and autism characterized this group of disorders. His ideas were, unfortunately, accepted before being empirically tested, leading to much confusion in mental status evaluations. This is particularly true for disturbance in affect (39) and associations (24).

6.1. Disturbances in Affect

The examiner must distinguish between flat and depressed affect, which occur in disorders that seldom intersect (i.e., chronic schizophrenia versus primary mood disorder). Shallow, blunted, and flat affect refer to increasing degrees of emotional impoverishment—often accompanied by a subjective feeling that one cannot experience emotions, a classical disturbance of schizophrenia. By contrast, depression is a painful affect, what William James termed a psychical neuralgia (40).

Depressed patients given antipsychotics, particularly classical neuroleptics, usually for agitation, may appear to have flat or blunted affect. This is seldom observed nowadays with the advent of the atypical antipsychotics.

Many depressed patients also experience anhedonia, best described by Shakespeare: “How weary, stale, flat, and unprofitable/Seem to me all the uses of this world” (Hamlet, Act I, Scene 11). Diagnostic difficulties arise in “severe” depression, in which the anhedonia may progress to a pervasive sense of emptiness, often accompanied by the inability to feel normal emotions; such patients may feel “dead inside” and see the world around them as lifeless. Differential diagnosis can be accomplished as follows. First, the facial expression of the chronic schizophrenic individual is typically vacuous, whereas that of the clinically depressed person is typically one of pain, gloom, and dejection. Second, those with schizophrenia tend to produce, in the observer, a cold feeling and an inability to empathize (the so-called praecox feeling), whereas the depressives’ dejection and pain are usually communicated in such a way that the interviewer can empathize with them. Admittedly, this is a subjective criterion, but it is very useful in the hands of experienced clinicians.

Labile affect (which changes quickly, often from one extreme to the other) must be distinguished from incongruent affect (which is inappropriate to the thought content or the context). Labile and incongruent affects should both be differentiated from “affective incontinence,” in which the patient laughs or cries for long periods with little or no provocation. Lability is encountered in the dramatic cluster of personality disorders; in mixed states of manic–depressive illness, in which there are rapid shifts from elation to irritability to depression; and in acute organic brain disease, in which the affect can quickly change from anxiety to terror to panic. Inappropriate affect (e.g., laughing while relating the gory details of a natural disaster) should raise the suspicion of schizophrenia. Emotional incontinence suggests organic states, such as arteriosclerotic dementia and multiple sclerosis.

Euphoria and elation, although characteristic of manic states, also can occur in organic mental disorders, such as general paresis of the insane and multiple sclerosis. The euphoria seen in mania has a warmth that is communicated to the observer (although manic patients, especially when crossed, can be irritable, hostile, and obnoxious); the interviewer should avoid direct confrontation with manic patients. A type of euphoria characteristic of chronic schizophrenia and frontal lobe lesions, known as Witzelsucht, consists of the patient relating silly jokes; these lack the empathic contagiousness of the humor of bipolar patients.

La belle indifférence should be differentiated from apathy. In the former condition—observed in conversion reactions—the patient exhibits lack of concern or even smiles in the face of reported disability. Apathy, on the other hand, seen in many chronic psychiatric patients because of their overall dismal situation, is a feeling akin to or associated with general demoralization.

6.2. Disturbances in Thinking

Unfortunately, “thought disorder” is often involved rather loosely to refer to both formal thought disorder and delusional content. For the sake of clarity, the unqualified use of the
phrase “thought disorder” should be discarded from psychiatric communication. Even the designation “formal thought disorder” covers too wide a territory. It should always be made clear whether one is referring to derailment or loose associations, flight of ideas, or circumstantiality. The presence of a delusion cannot be considered evidence of underlying formal thought disorder because, as noted previously, delusions can be secondary to affective, perceptual, and memory disturbances. We next consider several of these issues critical for a competent mental status exam.

“Derailment” refers to a disorder in associations whereby different thoughts are dissociated, disconnected, or rambling. If mild, it leaves the impression of “vagueness”; if the patient makes no sense at all, it is referred to as “word salad.” The phrase “loose associations” is used for an intermediate degree of severity, wherein one finds fragmented thoughts that do not seem to follow Aristotelian logic but may, nevertheless, have an inner, private (autistic) logic of their own. The “incoherence” that one observes in the thinking of patients with organic mental disorders is qualitatively distinct from the loose associations of the schizophrenic patient in that it lacks symbolism and autistic quality; however, in severe cases of schizophrenia, this distinction may be difficult to make. Vorbeireden, or talking past the point, also should be differentiated from incoherence. In Vorbeireden, which occurs in the Ganser syndrome, the patient gives obvious indication that he has understood the question yet deliberately provides “approximate” answers.

For instance, a patient examined in 1977, when asked who the president was, replied, “Jerry Carter,” and when asked who was president before him, he replied, “Jimmy Ford.”

The Ganser syndrome seen among prisoners is best understood in terms of conscious and unconscious reasons for appearing psychotic or demented; hence, it is also referred to as hysterical pseudodementia. To complicate matters, adolescent schizophrenic patients may find approximate answers amusing and may respond to an entire interview with a series of approximate answers; such patients may, therefore, seem to exhibit hysterical pseudodementia, but in reality, they have a hysterical “pseudopseudodementia.”

It is often erroneously assumed that inability to abstract on testing of similarities or proverbs (i.e., “concrete thinking”) has major diagnostic importance in schizophrenia. There is little scientific rationale for this belief. Concreteness correlates best with poor intellectual endowment, cultural impoverishment, and organic brain disease. Because all three of these factors not infrequently coexist with schizophrenia, to that extent, schizophrenic patients will have impaired ability in abstraction. The major value of testing abstraction in schizophrenia lies in the patient’s tendency to give highly idiosyncratic and bizarre answers to proverb and similarities testing.

“Pressure of speech,” usually seen in agitated depression, refers to patients who feel pressured to talk and usually cannot be stopped. “Flight of ideas,” a major diagnostic sign of mania, refers to a type of overproductivity wherein the patient rapidly skips from one idea or theme to another, often by resorting to rhyming or punning, but without totally abandoning logic. Pressure of speech and flight of ideas both should be distinguished from loose associations that do not follow Aristotelian logic. “Circumstantiality” is the unnecessary elaboration of detail and is seen in dullards (borderline IQ), pedantic obsessional patients, and patients with severe somatization disorder, but, in severe degree, it may be difficult to differentiate from schizophrenic looseness.

The clinician must note that, in some manic patients examined formally after having been given antimanic drugs, the triad of hyperactivity, flight of ideas, and pressure of speech is not as obvious as their delusional thinking.

The term paranoid is often used incorrectly to refer to suspiciousness or persecutory beliefs. Paranoid actually means “delusional” and should be restricted as a generic term for disorders characterized by prominent delusional formation (e.g., paranoid schizophrenia and paranoid states). Paranoid schizophrenia is a schizophrenic subtype in which delusions—not always persecutory in nature—occur in abundance. In paranoid states, usually one delusional theme predominates, with no evidence of schizophrenic formal thought disorder. For example, in conjugal paranoia, a man believes that his wife is having an affair and interprets all of her behavior along those lines.

Delusions can be graded based on their plausibility. For instance, the false belief that one’s spouse is unfaithful is nevertheless a believable idea. The false belief that one’s spouse is having multiple affairs simultaneously, although delusional, is not impossible. However, the belief that one’s spouse is having an affair with a creature with green tentacles is patently absurd; such bizarre delusions are the hallmark of schizophrenia, although they also can sometimes be associated with organic mental disorders.

7. Summary: Further Reading

The mental status examination represents the portion of the psychiatric interview that is devoted to a systematic elicitation of psychopathologic signs and symptoms that are important in diagnostic formulation. Consequently, it is essential that descriptive terms be used precisely and consistently. This will not only facilitate professional communication, but will also enhance the chances of formulating differential diagnosis in a cogent way, setting the stage for rational therapy.

Further in depth classic psychopathologic evaluation can be found in the work of Frank Fish (6) and German Berrios (41). More relevant to the American scene are Morrison’s DSM-IV Made Easy (42), Shea’s Psychiatric Interviewing (43), and the related monograph by MacKinnon and colleagues (44). Informative writing on various rating scales can be found in Sajatovic and Ramirez (45).
Psychologists use various tests of intelligence, personality, and cognitive function. They can be useful in specific situations such as mental retardation, personality (Axis-II) and organic mental disorders. Their discussion is beyond the scope of this chapter. Two recent monographs, the Cummings-Mega Neuropsychiatry (46) and the Moore-Jefferson Medical Psychiatry (47), provide succinct coverage in relation to organicity.

References


