The Concept of Schizophrenia: From the 1850s to the DSM-5

Dementia praecox or schizophrenia has been considered a unique disease entity for the past century. At the beginning of the 20th century, Kraepelin combined dementia paranoides, hebephrenia, and catatonia into a single dementia praecox, which he distinguished from manic-depressive insanity. Soon thereafter, Eugen Bleuler substantially broadened the boundaries of this entity, which he renamed the “schizophrenias.”

Despite changing definitions and boundaries in the past century, the construct of schizophrenia continues to convey useful information, in that this diagnosis suggests a distinctive clinical profile — a characteristic long-term course with an admixture of positive, negative, and cognitive symptoms, and the likelihood of benefit from antipsychotic treatment.

On the other hand, the current concept of schizophrenia has serious shortcomings. First, it is not a single disease entity — it has multiple etiological factors and pathophysiological mechanisms. Second, its clinical manifestations are so diverse that its extreme variability is considered by some to be a core feature. Third, its boundaries are ill-defined and not clearly demarcated from other clinical entities.
In the Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM-5), several revisions are proposed to address these limitations. Instead of current subtypes and course specifiers, the heterogeneity of schizophrenia might be significantly explained by the interplay between variations in: a) illness dimensions and intermediate phenotypes; and b) distinct stages of schizophrenic illness. Demarcation of an Attenuated Psychosis Syndrome might permit safe and effective prevention, whereas better delineation of schizoaffective disorder should improve diagnostic utility. The current DSM-5 proposals, which may provide a more useful description of schizophrenia, will be summarized.

INTRODUCTION

Our current nosological system (literally, system of classification of disease) for psychiatric disorders originated in efforts during the late 19th and early 20th centuries, culminating in the first edition of DSM in 1952 and a section related to mental disorders (section V) in the sixth revision of the International Classification of Disease (ICD-6) in 1949. In subsequent revisions (ICD 7-10 and DSM II-IV), substantial changes in diagnostic criteria were made, although the basic structure was retained. Whereas there was considerable divergence between section V of ICD-6 and DSM-I, there is now considerable similarity between DSM-IV and section V of ICD-10.

The process of revising DSM-IV and ICD-10 is currently under way, with DSM-5 expected to be released in 2013, and ICD-11 in 2015. Current versions of ICD-10 and DSM-IV are marked by considerable complexity, variable validity, limited clinical and research utility, and problems of burgeoning comorbidity. Efforts to revise DSM and ICD systems of classification of mental disorders seek to address these limitations.

Although schizophrenia has been studied as a specific disease entity for the past century, its precise nature (core definition, precise boundaries, causes, and pathogenesis) remains undefined. Since its demarcation as dementia praecox by Kraepelin and schizophrenia by Eugen Bleuler, its definitions have varied and its boundaries expanded and receded in the past century. Thus, it is instructive to examine the varying definitions of schizophrenia in the past 150 years.

ORIGINS OF SCHIZOPHRENIA

The current construct of schizophrenia derives from Emil Kraepelin’s formulation of dementia praecox in the late 19th century and his elaboration of this concept in the early part of the 20th century. Until that time, there were two broad prevailing constructs of major psychiatric illness. Based on his study of people with a major mental disorder in large psychiatric hospitals, Griesinger postulated that there was only one basic form of psychosis with diverse manifestations attributable to endogenous and environmental factors (“eineitspsychose”). In contrast to this concept of a unitary psychosis, others suggested that there were several distinct disorders (eg, catatonia, hebephrenia, folie circulaire, dementia paranoides, and melancholia).

Kraepelin’s renown was in identifying two distinct patterns of illness course around which the many different conditions could be grouped. Based on his study of several hundred cases of hospitalized patients, he delineated two distinct disorders: i) dementia praecox, combining catatonia, hebephrenia, and paranoid states; and ii) manic-depressive insanity, combining folie circulaire and melancholia. Kraepelin identified schizophrenia on the basis of its onset (in adolescence or early adulthood), course (deteriorating), and outcome (demence or “mental dullness”). He distinguished dementia praecox from manic-depressive insanity on the basis of the chronicity and poor outcome of the former contrasted with the episodicity and better outcome of the latter.
SIDEBAR 2.

DSM-IV Criteria for Schizophrenia and Schizoaffective Disorder

Criterion A. Characteristic Symptoms
Two (or more) of the following, each present for a significant portion of time during a 1-month period (or less if successfully treated):
• Delusions
• Hallucinations
• Disorganized speech
• Grossly disorganized or catatonic behavior
• Negative symptoms (ie, affective flattening, alogia, or avolition)

Note: Only one Criterion A symptom is required if delusions are bizarre or hallucinations consist of a voice keeping up a running commentary on the person's behavior or thoughts, or two or more voices conversing with each other.

Criterion B. Social/Occupational Dysfunction
For a significant portion of the time since the onset of the disturbance, one or more major areas of functioning, such as work, interpersonal relations, or self-care are markedly below the level achieved prior to the onset (or when the onset is in childhood or adolescence, failure to achieve expected level of interpersonal, academic, or occupational achievement).

Criterion C. Duration
Continuous signs of the disturbance persist for at least 6 months. This 6-month period must include at least 1 month of symptoms (or less if successfully treated) that meet Criterion A (ie, active-phase symptoms) and may include periods of prodromal or residual symptoms. During these prodromal or residual periods, the signs of the disturbance may be manifested by only negative symptoms or two or more symptoms listed in Criterion A present in an attenuated form (eg, odd beliefs, unusual perceptual experiences).

Criterion D. Schizoaffective and Mood Disorder Exclusion
Schizoaffective Disorder and Mood Disorder with Psychotic Features have been ruled out because either 1) no Major Depressive or Manic Episodes have occurred concurrently with the active phase symptoms; or 2) if mood episodes have occurred during active-phase symptoms, their total duration has been brief relative to the duration of the active and residual periods.

Criterion E. Substance/General Mood Condition Exclusion
The disturbance is not due to the direct physiological effects of a substance (eg, a drug of abuse, a medication) or a general medical condition.

Criterion F. Relationship to a Pervasive Developmental Disorder
If there is a history of Autistic Disorder or another Pervasive Developmental Disorder, the additional diagnosis of Schizophrenia is made only if prominent delusions or hallucinations are also present for at least a month (or less if successfully treated).

Subtypes:
• Disorganized
• Catatonic
• Paranoid
• Undifferentiated
• Residual

Course Specifiers:
• Episodic with interepisode residual symptoms
• Episodic with no interepisode residual symptoms
• Continuous
• Single episode in partial remission
• Single episode in full remission
• Other or unspecified pattern

Schizoaffective Disorder
A. Uninterrupted period of illness during which there is a major mood episode [major depressive, manic, or mixed] concurrent with criterion A of schizophrenia.
B. Delusions and hallucinations for 2 or more weeks in absence of prominent mood symptoms.
C. Symptoms that meet criteria for a major mood episode are present for a substantial portion of the total duration of the active and residual portion of the illness.
D. Disturbance not due to direct physiological effects of a substance or a general medical condition.

Dimensions and Severity:
None in DSM-IV

Adapted from American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders. 4th ed (DSM-IV).
Eugen Bleuler \(^2\) renamed this condition “schizophrenia” because he considered the splitting of different psychiatric functions to be its defining characteristic. He identified a set of basic or fundamental symptoms (see Sidebar 1, page 290), which were unique to schizophrenia and always present in those with this group of diseases. He considered the course and outcome to be variable.\(^2,10\) Influenced by the work of Sigmund Freud, Bleuler considered accessory symptoms (e.g., delusions and hallucinations) to be psychogenically determined, variable, and non-specific. He further believed that many mild cases existed and considerably broadened the scope of the disease entity of schizophrenia. Thus, he included latent and simple forms as part of this entity, which he called the group of schizophrenias.

Influenced by the thinking of Karl Jaspers, Kurt Schneider\(^13\) believed that impairment of empathic communication was the fundamental defect in schizophrenia and considered “un-understandability” of the personal experience as pathognomonic. Based on this premise, he defined 11 first-rank symptoms (see Sidebar 1, page 290) that he considered to be diagnostic of schizophrenia.\(^10,11\) Initially incorporated into the Present State Examination,\(^14\) these symptoms were then included into ICD (8-10) and DSM (III-IV) definitions of schizophrenia.

Current definitions of schizophrenia (including ICD-10 and DSM-IV-TR) all incorporate Kraepelinian chronicity, Bleulerian negative symptoms, and Schneiderian positive symptoms as part of the overall definition. The relative emphasis paid to these three roots has, however, varied over time. Looking at the DSM system, the Bleulerian perspective (emphasis on negative symptoms and very broad definition of the schizophrenias, including latent, pseudoneurotic, pseudopsychopathic, and residual subtypes) is reflected most strongly in DSM I \(^5\) and II.\(^15\)

This overly broad definition led to a marked discrepancy between the diagnosis of schizophrenia in the US and the rest of the world, which used the ICD system and emphasized Kraepelinian chronicity (ICD-7), as well as Schneiderian positive symptoms (ICD-8). In reaction to these discrepancies, the operationalized criteria of DSM-III\(^16\) provide the narrowest definition of schizophrenia, with an emphasis on Kraepelinian chronicity and Schneiderian positive (first-rank) symptoms. From DSM-III to DSM-IV,\(^5\) there was a modest expansion of the boundaries of schizophrenia with a slightly decreased emphasis on Schneiderian first-rank symptoms, and a mention of Bleulerian negative symptoms.

Looking ahead, we explore the major limitations in the current construct of schizophrenia,\(^17\) as well as the current DSM-5\(^18\) efforts to address them.

LIMITATIONS IN THE CONSTRUCT OF SCHIZOPHRENIA

It is increasingly evident that schizophrenia is not one disease. Many etiological factors and pathological processes appear relevant to what we consider schizophrenia.\(^19,20\) Thus, it is almost certain that our construct encompasses not one but several diseases. This is evidenced by the following arguments:

- The boundary between schizophrenia and schizoaffective disorder is imprecisely defined and a significant proportion of individuals with schizophrenia and mood symptoms inappropriately receive a diagnosis of schizoaffective disorder. This is compounded by poor reliability and low diagnostic stability of the schizoaffective disorder diagnosis.\(^9,21\)
- The current classic subtypes of schizophrenia provide a very poor description of the enormous heterogeneity of this condition. Additionally, subtype stability is low and only the paranoid and undifferentiated subtypes are used with some frequency.\(^22,23\)
- The prominence that continues to be given to Schneiderian first-rank symptoms (bizarre delusions or special hallucinations) appears misplaced.\(^24,25\)
- The current construct of schizophrenia is inadequate in describing the major psychopathological dimensions of the condition\(^23\) or stages in its evolution.\(^26\)
- The clinical construct as currently defined does not match neurobiological markers\(^20\) and genetic findings\(^19,27\) or specific pharmacological treatment provided.\(^28\)

CURRENT DSM-5 PROPOSAL FOR THE DEFINITION OF SCHIZOPHRENIA

The currently proposed DSM-5 definition of schizophrenia\(^18\) advocates a number of changes to the DSM-IV description to address some of these limitations (see Sidebar 2, page 291). The stated rationale for the proposed changes is briefly described.

Schizophrenia Syndrome

Changes proposed in the diagnostic criteria of schizophrenia are modest and continuity with DSM-IV is broadly maintained (see Sidebar 2, page 291). Whereas no changes in Criteria B-E are proposed, the change in Criterion F is minimal. Three modest changes are proposed in Criterion A (active phase symptoms). These are:

- Elimination of special treatment of bizarre delusions and other Schneiderian first-rank symptoms. In DSM-IV, only one Criterion A is required if it is a bizarre delusion or hallucination. Because Schneiderian first-rank symptoms are not pathognomonic for schizophrenia, they do not have diagnostic specificity. Consequently, it appears ap-
### Proposed Criteria for Schizophrenia and Related Disorders in DSM-5 (Currently Being Field-Tested)

**Criterion A. Characteristic Symptoms:**

Two (or more) of the following, each present for a significant portion of time during a 1-month period (or less if successfully treated).

**CHANGE:** At least one of these should include 1-3

1. Delusions
2. Hallucinations
3. Disorganized speech
4. Grossly disorganized or catatonic behavior
5. Negative symptoms, i.e., restricted affect or avolition/asociality

No change in 1-4, with minor clarification in 5

**CHANGE:** Delete Special Treatment of “Schneiderian First-rank Symptoms;” no longer pathognomonic

**Criteria B through E:** No changes

**Criterion F. Relationship to a Pervasive Developmental Disorder**

No real change. Clarification that specific need for prominent delusions or hallucinations applies for any communication disorder, including autistic disorder and pervasive developmental disorder.

**Subtypes**

**CHANGE:** Delete subtypes (a major change)

**Course Specifiers:** No change

**Schizoaffective Disorder**

**CHANGE:** A. An uninterrupted period of illness during which, at some time, Criterion A symptoms of schizophrenia are present and there is either a major depressive episode or a manic episode.

**CHANGE:** B. During the lifetime duration of the illness, delusions and/or hallucinations are present at least for 2 weeks in the absence of a major mood episode (depressive or manic).

**CHANGE:** C. A major mood episode is present for the majority (> 50%) of the total duration of the illness. (Note periods of successfully treated mood symptoms count toward the cumulative duration of the major mood episode).

D. No change.

**Dimensions and Severity**

**CHANGE:** Add nine dimensions, which will be assessed on a 0-4 scale cross-sectionally, with severity assessment based on past month (major change)

1. Delusions
2. Hallucinations
3. Disorganization
4. Restricted emotional expression
5. Avolition-asociality
6. Impaired Cognition
7. Depression
8. Mania

**CHANGE:** Attenuated Psychosis Syndrome (major change; not found in DSM-IV)

All six of the following:

A) Characteristic symptoms: at least one of the following in attenuated form with intact reality testing, but of sufficient severity and/or frequency that it is not discounted or ignored;

1. Delusions
2. Hallucinations
3. Disorganized speech

B) Frequency/Currency: symptoms meeting Criterion A must be present in the past month and occur at an average frequency of at least once per week in past month

C) Progression: symptoms meeting Criterion A must have begun in or significantly worsened in the past year

D) Distress/Disability/Treatment Seeking: symptoms meeting Criterion A are sufficiently distressing and disabling to the patient and/or parent/guardian to lead them to seek help

E) Symptoms meeting Criterion A are not better explained by any DSM-5 diagnosis, including substance-related disorder

F) Clinical criteria for any DSM-5 psychotic disorder have never been met

Adapted from American Psychiatric Association, 2011; dsm5.org

Properly that “positive symptoms” be treated like any other with regard to their diagnostic implications.

- Clarification of types of negative symptoms that are considered active phase symptoms. It is proposed that DSM-5 consider diminished emotional expression and avolition as the two domains of negative symptoms which count toward the A criteria; there is no change in the criteria itself.
- It is essential that at least one of two required symptoms to meet Criterion A be delusions, hallucinations, or disorganized thinking.

These are core “positive symptoms” diagnosed with high reliability and might reasonably be considered necessary for a diagnosis of schizophrenia.
Subtypes of Schizophrenia

The current DSM-5 proposal for describing schizophrenia advocates that DSM-IV subtypes of schizophrenia be eliminated. These subtypes have limited diagnostic stability, low reliability, poor validity, and little clinical utility. Furthermore, except for the paranoid and undifferentiated subtypes, the other subtypes are rarely used in most mental health care systems.

Schizoaffective Disorder

Many patients with schizophrenia exhibit prominent mood symptoms at some stage of their illness. Conversely, mania and severe depressive states are frequently marked by psychotic symptoms. Characterization of patients with psychotic and mood symptoms either concurrently or at different points during their illness has always been a source of controversy.

In DSM-I and DSM-II, a diagnosis of schizophrenia was generally recommended using the schizophrenia, schizoaffective subtype for conditions with prominent mood symptoms. In DSM-III, this recommendation evolved into having a strong mood disorder bias; schizophrenia was to be diagnosed only in the absence of prominent mood symptoms.

Furthermore, in DSM-III a diagnosis of schizoaffective disorder was very strongly discouraged, and was the only condition in DSM-III without operational criteria. Schizoaffective disorder saw a revival in DSM-III-R, which continued into DSM-IV. In fact, almost one-third of patients with psychotic symptoms currently receive a diagnosis of schizoaffective disorder in many mental health care systems.

One of the major changes in the definition of schizoaffective disorder from DSM-III to DSM-IV is that it moved from a lifetime diagnosis to a cross-sectional diagnosis (i.e., in DSM-IV, only mood/psychotic symptoms in the current episode are considered while the longitudinal course of these symptoms in the individual’s life history are ignored). In the current DSM-5 proposal, an effort is made to improve reliability of this condition by providing more specific criteria reconceptualizing it as a longitudinal and not a cross-sectional diagnosis. To this end, the most significant change is proposed in Criterion C of schizoaffective disorder (see Sidebar 3, page 293).

Psychopathological Dimensions of Schizophrenia

It is clear that schizophrenia is characterized by several psychopathological domains, with distinctive course, patterns of treatment-response, and prognostic implications. The relative severity of these symptom dimensions vary across patients, as well as within patients at different stages of their illness. Measuring the relative severity of these symptom dimensions through the course of illness in the context of treatment can provide useful information to the clinician about the nature of the illness in a particular patient and the specific effect of treatment on different aspects of the patient’s illness (analogous to measuring pulse, temperature, blood pressure, respiratory rate, etc.).

As a simple rating scale (akin to a thermometer or a sphygmomanometer), it should encourage clinicians to explicitly assess and track changes in the severity of these dimensions and to use this information to guide treatment. The issue of how many dimensions are useful, necessary, and practicable (nine dimensions are currently being field-tested) remains an open question. In addition to its clinical utility, dimensional measurement should prove useful from a research perspective and thereby permit studies on etiology and pathogenesis that cut across current diagnostic categories. Such approaches would be consistent with recent findings in genetics and neuroscience, as well as the recent Research Domain Criteria (RDoC) Project initiated by the National Institutes of Mental Health.

Attenuated Psychosis Syndrome

It is believed that the still unsatisfactory outcome of schizophrenia in a significant proportion of individuals with the disorder is because we identify the illness and initiate treatment late in the course after a substantial amount of damage has occurred. The introduction of Attenuated Psychosis Syndrome (see Sidebar 3, page 293) will support the efforts of clinicians to recognize and monitor psychotic symptoms early in the course of their evolution, and, if necessary, intervene in these crucial early stages.

Early recognition and intervention are important in other branches of medicine and these changes in DSM-5 should stimulate the development of a similar practice in psychiatry. The proposal is controversial and is currently being field-tested. It is unclear if this category will finally appear in DSM-5 and if it does, whether it will be in the main text or the appendix.

IMPACT OF CHANGES

At this time, three proposed changes in DSM-5 definition of schizophrenia are being field-tested. These include evaluating:

- The effect of adding attenuated psychosis syndrome as a new class: reliability, feasibility, effect on prevalence; etc.
- The addition of a series of psychopathology dimensions: feasibility, utility, reliability, etc.
- The effect of adding attenuated psychosis syndrome as a new class: reliability; feasibility, etc.

This change should allow clinicians and patients to better evaluate the effectiveness of treatments; and

- The effect of adding attenuated psychosis syndrome as a new class: reliability; feasibility, etc.

This will facilitate the provision of early treatment to patients.

The field trials are expected to be completed by the end of 2011. Based
on their results and other emerging data and discussions, some additional changes in the current DSM-5 proposals are expected and may be assessed in phase 2 of the field trials to be conducted in 2012. The final proposals regarding DSM-5 definition of schizophrenia, schizoaffective disorder, and attenuated psychosis syndrome are expected toward the end of 2012. The DSM-5 manual with the final set of diagnostic criteria is expected to be published in 2013.

CONCLUSIONS

While the shortcomings of our current diagnostic approach to schizophrenia are presently easy to enumerate, it is difficult to come up with something that is more valid, more clinically useful, and more reliable all at the same time. Although maintaining high reliability and improving validity are important considerations, the principal objective of the DSM system is clinical utility. Any proposed changes must facilitate clinical assessment and treatment, must be implementable in routine clinical settings, and must provide meaningful distinctions between different kinds of mental illnesses.

Additionally, the DSM system is designed to facilitate research aimed at better understanding etiology and pathogenesis. Hopefully, the revisions in DSM-5 and ICD-11 criteria for schizophrenia and related disorders will make them more useful to patients, clinicians, researchers, and society at large.

REFERENCES