Premorbid Adjustment, Onset Types, and Prognostic Scaling: Still Informative?

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Efforts emerged to describe, quantify, and predict prognosis once it became clear that the outcomes of Kraepelian dementia praecox could vary. The concepts and scales that have evolved focus on types of premorbid adjustment and illness onset. Enduring highlights of this literature will be described, and its current and future utility will be discussed.

Key words: schizophrenia/schizophreniform disorder/process-reactive onset types/premorbid adjustment/duration of untreated psychosis

Introduction: The Emergence of Outcome Variation in Schizophrenia

Kraepelin defined dementia praecox or schizophrenia by consolidating several neuropsychiatric syndromes into an entity with uniform predictive validity, ie, all entities led to cognitive, emotional, and functional deterioration.1 In the beginning, diagnosis and prognosis were essentially the same. Once Kraepelin’s diagnosis came to be accepted and used, however, the entity became more complex and its longitudinal course became more diverse through the eyes of new observers.2 Dementia praecox, renamed schizophrenia by Bleuler, became 2 entities in the 1920s and 1930s through the work of Langfeldt.3–5 Starting in 1926 at the University Clinic in Oslo, Norway, he labeled schizophrenic patients as either typical or atypical by their history and symptomatic presentation. Follow-up 6–10 years later revealed convincing differences in outcome, with the majority of the typical patients being unimproved and the majority of the atypical patients being improved. Langfeldt considered the typical schizophrenic patients to be cases of dementia praecox, as originally described by Kraepelin. The new entity he labeled schizophreniform psychosis, and the official evolution of schizophrenia into more than one syndrome commenced.

Further observations, both by Langfeldt and other clinical investigators, validated and extended his typical/atypical distinction. Welner and Strömgren,6 with their own follow-up of schizophreniform vs “true” schizophrenia patients, replicated Langfeldt’s findings. They asserted that the primary descriptive distinction between the 2 was the “absence of autism” in schizophreniform disorder, eg, “it was always possible to establish emotional rapport by insistent attempts.” They also reported that the rate of schizophrenia in the siblings of schizophreniform patients was less than that of siblings of typical schizophrenic patients, suggesting a genetic/biological distinction between these 2 clinical entities. The demonstrated value of longitudinal follow-up for detailing outcome after onset led to applying this perspective to the patient’s life trajectory before onset. Here, too, interesting contrasts emerged between schizophrenia and schizophreniform disorder.2 Typical schizophrenia was characterized by “inadequate prepsychotic adjustment with little interest in other people or the activities of life.” Furthermore, “the psychosis develops gradually from this pattern, with no identifiable precipitating stress.”

The Process-Reactive Distinction

By the middle of the 20th century, schizophrenia was considered either to be 2 disorders or, if only one disorder, to possess 2 dimensions. These dimensions carried a number of dichotomous terms—malignant/benign, dementia praecox/schizophrenia, chronic/episodic, chronic/acute, typical/atypical, evolutionary/reactive, true/schizophreniform, and process/reactive.7 The latter dichotomy became perhaps the most popular, and it continues to be used currently. Chapman et al2 summarized the distinction as follows:

“The distinction is usually justified by the differing prognosis of two symptom patterns. Briefly, a process (or “typical”) schizophrenic is said to be characterized by an inadequate prepsychotic adjustment, with little interest in other people or the activities of life. The psychosis develops gradually from this pattern, with no identifiable precipitating stress. The symptoms usually include affective flattening with a clear sensorium. The prognosis is poor, and the disorder follows the deteriorating course described by Kraepelin for dementia praecox. The reactive (or “atypical”) schizophrenic is said to be characterized by a fairly normal prepsychotic adjustment, the psychotic symptoms appearing...
suddenly in response to severe stress. The symptoms include a clouded sensorium and marked affective display. The prognosis is good.”

Langfeldt described the elements of what he termed “spontaneous prognosis” as follows:

“According to many of the most thorough studies on the topic, the following factors seem to have a favourable influence on the course of the schizophrenic disorder:

a) An emotionally and intellectually well-developed premorbid personality.
b) Demonstrable precipitating factors.
c) Insidious onset.
d) A mental symptomatology characterized by a mixed picture, especially with admixtures of manic-depressive traits, cloudiness or symptoms of organic (perhaps toxic) and psychogenic origin and without the typical blunting of emotional life.
e) A favourable environment before and after the outbreak of the disorder, with a psychologically correct attitude on the part of the surroundings to the problems of the patient.

The following are generally considered as unfavourable factors:

a) An emotionally and intellectually poorly developed personality.
b) No demonstrable precipitating factors.
c) Acute onset.
d) A symptomatology mainly characteristic of Kraepelin’s dementia praecox types with the basic traits of autism and emotional bluntness as stressed especially by E. Bleuler in his description of the basic traits in schizophrenia. Particularly unfavourable are those cases which are characterized by typical de-personalisation and de-realisation symptoms with clear consciousness and the absence of admixtures from other psychoses.
e) An unfavorable environment before and after the outbreak of the disease.”

Langfeldt noted that a patient’s response to different treatments also depended upon these same “spontaneous prognosis” factors, suggesting that the therapies in question were not specific to the disorder. Ultimately, Langfeldt came to feel that the distinction between these types of schizophrenia rested upon the elements of premorbid functioning and type of onset rather than upon presenting symptomatology.

Subsequent investigators elaborated on these preonset domains. Regarding premorbid functioning, Phillips felt that the factors primarily related to outcome were the patient’s level of social maturity reached prior to onset and how deviantly the person presented vis-à-vis their affective ties to others. Kantor et al. detailed that the reactive patient’s years from birth to age 5 years were characterized by good psychological and physical health, from year 5 to adolescence by good school adjustment, extroverted behavioral trends, domestic troubles unaccompanied by behavioral disruptions, and adequate social, physical, and mental functioning, and from adolescence onward by heterosexual behavior. According to Astrup et al., the ominous premorbid signs were schizoid personality, poor intelligence, low work capacity, decreasing occupational level, poor relations with relatives, and being single.

Concerning illness onset, Phillips noted that in process cases the breakdown develops gradually from the “previous history of the person” with little or no perceptual reasons for onset. In reactive cases, precipitating events interrupt a usual pattern of adjustment that reflects a more adequate prepsychotic level. Kantor et al. noted that the graduation in onset in process cases while reactive cases develop in the presence of stress. Astrup et al. considered the type of onset to be very important. Acute onsets without productive (positive) symptoms were very favorable, whereas insidious onsets without any symptomatic or functional fluctuations were very ominous.

Herron synthesized the domains of the process and reactive patients as follows:

“A process patient would exhibit the following characteristics: early psychological trauma, severe or long physical illness, odd member of the family, school difficulties, family troubles paralleled by sudden changes in the patient’s behavior, introverted behavior trends and interests, history of a breakdown of social, physical, and/or mental functioning, pathological siblings, overprotective or rejecting mother, rejecting father, lack of heterosexuality, insidious gradual onset of psychosis without pertinent stress, physical aggression, poor response to treatment, lengthy stay in hospital, massive paranoia, little capacity for alcohol, no manic-depressive component, failure under adversity, discrepancy between ability and achievement, awareness of a change in the self, somatic delusions, a clash between the culture and the environment, and a loss of decency.

In contrast, the reactive patient has these characteristics: good psychological history; good physical health; normal family members; well adjusted at school; domestic troubles unaccompanied by behavioral disruptions in the patient; extroverted behavior trends and interests; history of adequate social, physical, and/or mental functioning; normal siblings; normally protective, accepting mother; accepting father; heterosexual behavior; sudden onset of psychosis with pertinent stress present; verbal aggression; good response to treatment; short stay in the hospital; minor paranoid trends; good capacity for alcohol; manic-depressive component present; success despite adversity; harmony between ability and achievement; no sensation of self-change; absence of somatic delusions; harmony between the culture and the environment; and retention of decency.”

Premorbid Prognostic Scales

Phillips noted “2 primary factors which seem to influence the outcome of a schizophrenic episode are (a) the level of social maturity reached previous to the
breakdown and (b) how far the person deviates from normality, particularly in the loss of affective ties, during the psychosis itself. To capture these [premorbid] prognostic elements more objectively and quantitatively, Phillips developed a prognostic scale with clear and quantifiable elements pertaining to the premorbid versus morbid periods of a case.

Two of the Phillips scales focus on the prepsychotic period, “premorbid history” and “possible precipitating factors.” Premorbid history explores aspects of sexual adjustment and person relations. The former includes 4 items targeting sexual adjustment (stable heterosexual relations/marriage vs no sexual interests at all) over several time periods (current, adolescence, adult less than age 30 years, and adult more than age 30 years) and 2 items targeting (nonsexual) personal relations (eg, number of close friends and social activity). Possible precipitating factors include “personal stressors” (changes in relations with partners, relatives, etc) and “environmental stressors” (a potpourri of stress, trauma, and injury).

The scale was used to evaluate 31 recent onset patients admitted to Worcester State Hospital in Massachusetts, with a diagnosis of dementia praecox (N = 29) or “paranoid condition” (N = 2). All scales were successful (with robust statistical significance) in predicting which patients would respond to therapy (eg, forms of shock, electroshock, metrazol shock, or insulin coma). This report may be the first quantitative validation of premorbid predictors of outcome in general and of a scale of premorbid prognostic indicators in particular. Interestingly, subsequent work with the scale by Chapman et al found that for males marital status was as good a predictor as the total scale score (in a way validating Phillip’s detailed focus on heterosexual relations in the scale itself).

Cannon-Spoor et al developed a scale measuring premorbid function and adaptation in schizophrenia. Their Premorbid Adjustment Scale (PAS) comprises 36 items, describing function before the onset of psychosis. The items cover: (1) sociability and withdrawal, (2) peer relationships, (3) scholastic performance, (4) adaptation to school, and (5) capacity to establish social and sexual relationships, assessed over 4 periods of life: childhood (up to 11 years), early adolescence (12-15 years), late adolescence (16-18 years), and adulthood (19 years and beyond). The ratings are based on interviews with the patient and/or with family members. The score range of each item is 0–6, with 0 indicating the best level of functioning and 6 the worst. Onset of psychosis is defined by the presence of delusions, hallucinations, thought disorder, inappropriate or bizarre behavior, or gross psychomotor behavior in which the symptoms are not apparently due to organic causes.

The PAS can be scored in a variety of ways including combining thematic variables and/or time periods. It can also be scored reliably. Unlike any other prognostic scale, the PAS has been used in literally dozens of investigations of schizophrenia, clearly indicating its high information value and its relative ease of application. No effort will be made to summarize this literature. Rather, its use in one investigation will be reported to illustrate how and why the PAS has become a staple of clinical research.

A pooled sample of 335 first-episode psychosis patients with PAS data were recruited from 2 studies in Norway and Denmark for cluster analysis in order to identify distinctive patterns of premorbid course. The hypothesis was that 2 patterns would be identified, one reflecting early (childhood) neurodevelopmental pathophysiology and the other reflecting late (adolescent) neurodevelopmental pathophysiology. The findings were that (1) premorbid social and academic functioning formed fairly independent dimensions of functioning; (2) academic functioning varied greatly from poor to good starting in childhood, and these levels were generally stable over subsequent developmental periods; and (3) social functioning varied moderately from intermediate to good starting in childhood, but the levels in about 50% of the sample deteriorated over subsequent developmental periods. It was concluded that the data patterns were not incompatible with the theory that at least 2 neurodevelopmental pathways to psychosis exist, one with perinatal/early childhood neurodevelopmental origins reflected primarily in cognitive functioning and the other with adolescent/early adulthood neurodevelopmental origins reflected primarily in social functioning.

Discussion

The Evolution of Prognostic Concepts and Instruments

Prognostic prediction aims to bring order to the heterogeneity of schizophrenia, and it came into being when it was clear that the disorder varied in presentation and course. The initial efforts focused on predicting the “outcome” of treatments for established disorder. For example, many of the items in the Elgin Scale, one of the first prognostic scales ever developed in 1941, were descriptions of symptoms and deteriorated behaviors seen in established cases of disorder. The object of the scale was to predict response to treatments in established state hospital inpatients. With the dichotomization of schizophrenia into prognostically typical and atypical diagnostic entities, however, attention turned to the natural history of disorder and especially the preonset period of that history. The data of interest became nested in the realms of premorbid functioning and the process of disorder onset.

Process Vs Reactive Onset Type

The process/reactive onset distinction has been one of the most enduring in the schizophrenia literature. It survived for decades, was the subject of an entire issue of the Schizophrenia Bulletin in 1970, and is still used on occasion today. The use of terms like process and reactive has become outdated because they infer distinctive etiologies that cannot be tested. The term process implies that
the onset is not only slow and silent but also that it is biologically programmed into the system and developmentally inevitable no matter what the environment. Reactive is the opposite. The development of disorder is rapid, stormy, and “reactive” to identifiable environmental stresses and events. The etiologic implications of this dichotomy are that a process onset is biogenic and a reactive onset is psychogenic.

Because the etiologic sources of the process/reactive dichotomy cannot be tested by studies restricted to the clinical level of inquiry and hypothesis testing, these etiologic inferences are not usually taken seriously anymore. Still, it might be useful to consider dropping the terms and substituting purely phenomenological labels. A “process” onset could become one that is “slow and silent” and a reactive onset one that is “fast and loud.” In the slow and silent onset, negative symptoms and functional deterioration precede the production of positive psychotic symptoms by a substantial period of time. The fast and loud onset is one where positive psychotic symptoms emerge rapidly, before or shortly after any functional deterioration. While etiologic inferences may not yet have a place in the terminology of the process/reactive distinction, the distinction can be used to test etiologic hypotheses by conducting biological/imaging studies in patients who have been sorted by onset type.

Prognostic Scaling and Duration of Untreated Psychosis

The newest prognostic measure on the block is duration of untreated psychosis, or DUP, the time from the onset of positive psychotic symptoms to the time of diagnosis and first treatment. DUP has recently become a prominent parameter in schizophrenia research and treatment for 2 reasons. First, DUP in first-onset schizophrenia has been found to be remarkably long, often more than 1 year in length on average. It is, therefore, a public health problem of major proportion. Second, lengthier DUP in first-onset schizophrenia is regularly associated with a more chronic long-term course of the disorder. That is, long DUP prognosticates a poor outcome. Many studies have replicated this finding, and 2 meta-analyses of first-onset studies find significant, albeit modest, effect sizes connecting longer DUP with poorer outcome. 

The original parameters of premorbid adjustment and onset of disorder, as noted above, can be condensed descriptively into onsets that are slow vs fast (chronic/acute) and silent vs loud (negative symptoms/positive symptoms). By apparently truncating these parameters into one, DUP promises to simplify prognostication and to require the measurement of only one variable, time since psychosis onset. However, because DUP is a measure that begins upon onset, it does not measure or describe preonset adjustment or the earlier stages of the gathering storm of illness. For example, in a recent study of 73 first-episode schizophrenia patients in Atlanta, GA, the group’s median duration of untreated illness was nearly 2.5 years, whereas the group’s median DUP was 7 months. DUP actually covered only the last 23% of the illness process up to treatment onset. As such DUP may not be as richly informative as the more traditional prognostic measures of premorbid adjustment and onset type.

Early detection (ED) and treatment programs engineered to reduce DUP may need to take this perspective into consideration. In the Early Treatment and Intervention Psychosis Study (TIPS), ED and intervention study in Norway and Denmark, DUP was reduced in the ED health-care district vs the non–early (no-ED) detection control sectors via information campaigns and rapid access detection teams. DUP in the no-ED sectors was about 4 months (median) and in the ED sector about 1 month (median), a difference of about 3 months. At the same time, the difference in the average age of first-episode patients was much larger. The ED average age was 21 years, and the no-ED average age was 26 years, a difference of 5 years! Outcome in the TIPS sample has now been reported at baseline, 1- and 2-year follow-up. The course of the ED sample has proven to be uniformly more benign especially with respect to negative symptoms and functional deficits. When trying to account for such a significant and persistent difference in long-term outcome between sectors, a further question arises as to how much should be ascribed to the 3-month difference in DUP vs the 5-year difference in age.

It may be that in the TIPS study ED efforts were not only successful in accessing positive symptoms somewhat earlier than usual but also were successful in accessing negative symptoms and functional deterioration much earlier than usual. If this is indeed the case, it may be that engineering information campaigns exclusively to target positive symptoms only reaches the fast and loud onsets earlier, whereas it reaches the slow and silent onsets only after 70%–90% of the onset process has passed, when negative symptoms and functional deterioration (rather than positive symptoms) become too prominent to overlook. This in turn suggests that ED information campaigns should focus at least as much (if not more) on negative as on positive symptoms.

Finally, these considerations highlight that the pathogenic processes in schizophrenia are active long before the emergence of positive symptoms. As such untreated psychosis, while a crisis of its own, should not be taken to constitute the pathogenic process in schizophrenia. DUP is a reflection of this process; it is not the process. DUP is a marker (or epiphenomenon) of course, not its determinant.

Premorbid Adjustment, Onset Types, and Diagnostic and Statistical Manual of Mental Disorders (Fifth Edition)

Given the amount of data gathered and knowledge generated on the topic of premorbid adjustment and onset types (including the prodrome), it is remarkable how little
of this information has found its way into the *Diagnostic and Statistical Manual of Mental Disorders (Fourth Edition)* diagnosis of schizophrenia. The sum total amounts to one paragraph describing prodromal signs and symptoms (p. 278). Nothing exists about premorbid personality and adjustment. The diagnosis of schizophrenia is well covered but not the accumulated knowledge promoting the understanding or prediction of its heterogeneity. The literature on premorbid adjustment, onset types, and prognostic scaling remains informative and should be more represented in official nosology.

References