Abstract

Descriptive approaches to subtyping schizophrenia use symptoms, signs, and functioning characteristics as diagnostic criteria. Such approaches often appear superficially to be obvious, simple, and atheoretical; in reality, however, there are many ways in which descriptive data can be selected and organized to subtype patients. This report describes these various approaches. Selection of diagnostic criteria can focus primarily either on cross-sectional or longitudinal characteristics of patients. Alternative ways of organizing descriptive data include typological and dimensional approaches and two increasingly common complex models, multiaxial and hierarchical subtyping. Examples and implications of these alternative approaches are described, and methods for choosing among them are suggested.

We are justified in regarding the majority at least of the clinical pictures which are brought together here as the expression of a single morbid process, although outwardly they often diverge very far from one another. [Kraepelin 1919, p. 1]

Since Kraepelin (1919) first described dementia praecox, a continuing question has been whether this disorder—now called schizophrenia—does involve a single morbid process, a group of related morbid processes, or is actually a number of different disorders. This question is reflected in the efforts to solve the problems in determining etiology, pathogenesis, and treatment of schizophrenia by identifying valid subtypes. Such subtypes, it is hoped, would group together patients who are homogeneous in regard to etiology, pathologic process, prognosis, and treatment needs, and thus facilitate key discoveries in these areas. The argument for subtypes might continue with an analogy to infectious diseases. If all such illnesses had been grouped together under one diagnosis, the efficacy of penicillin—limited as it is to certain infectious agents—might have been completely overlooked.

If the subtyping hypothesis is correct, then several approaches for establishing subtypes can be pursued. One such approach is to focus on patients' descriptive clinical characteristics. This approach involves placing patients into subtype groups based on symptoms, social function, and other clinically important observable characteristics.

Attention to descriptive characteristics of disorder has had intermittent popularity in medicine over the centuries. Periods arise during which descriptive approaches are increasingly used; then, because these approaches tend to become ends in themselves, they become sterile, giving way to attempts at defining underlying processes and mechanisms that move progressively away from direct observation. At each stage in this cycle, it is to be hoped that progress will be made in understanding both the observable characteristics of various types of pathology and the underlying processes involved.

Although descriptive approaches to diagnosis and the establishment of subtypes may become sterile, as in classifying cough, these approaches are crucial for all branches of med-

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and to understand outcome and diagnostic models (Strauss 1975), establish clear diagnostic criteria. These approaches have been used to increase the availability of structured development. Recently, aided by the increasing availability of structured interviews and rating scales, but probably fostered also by increasing acceptance of such methods, there has been a renewed emphasis on descriptive approaches in psychiatry. Descriptive approaches can also be applied to the problem of subtyping schizophrenia. But before subtyping can be carried out optimally, it is important to note and understand the several alternative strategies available for such use of descriptive methods, since each of these strategies has different implications for understanding and selecting what is observed. In this report, we shall describe different descriptive strategies, the ways in which they have been used, and potential directions for future research.

**Cross-Sectional Strategies for Descriptive Subtyping**

Symptom differences viewed cross-sectionally have been traditionally used as a major approach for defining subtypes within the disorder schizophrenia. The earliest subtypes, hebephrenic, catatonic, and paranoid, were defined primarily by symptoms and signs that could be observed at any single period of assessment. Other subtypes, such as simple, schizoaffective, and borderline, that were subsequently added to standard classificatory systems are also based predominantly on cross-sectional differentiation of symptom pictures.

Cross-sectional subtyping by symptoms has an immediate appeal, which is most apparent in the concept of pathognomonic symptoms. This concept was used by Schneider (1959) in defining criteria for the diagnosis of schizophrenia generally, but has not been applied to the problem of subtyping. It would make subtyping diagnosis easy if the presence of a symptom or group of symptoms was sufficient for arriving at a diagnostic decision. The limits of such an approach for schizophrenia generally have been demonstrated (Carpenter, Strauss, and Muleh 1973), and the difficulties in searching for pathognomonic symptoms of subtypes would seem to be even more severe since the distinctions to be made are much finer.

Although it might not be possible to define pathognomonic symptoms for schizophrenic subtypes, cross-sectional description of symptom characteristics has continued to be an important component in defining many subtype categories. Systematic definition of such characteristics has been described in several relatively recent studies (McCabe 1976; Ritzler and Smith 1976; Tsuang and Winokur 1974).

One of the cross-sectionally defined subtype distinctions that has proved most valuable is the paranoid/nonparanoid dichotomy. In many reports, this dichotomy has appeared to have the greatest validity and reliability in terms of a number of descriptive scales and external validating criteria including prognosis and psychophysiology (Klorman, Strauss, and Kokes 1977; Ritzler and Smith 1976).

Most recently the subtyping of schizophrenic patients according to the presence or absence of concomitant affective symptoms has gained increased attention. This process, which has involved the division of schizophrenics into those with schizoaffective disorder and those with other subtypes, has culminated most recently in the exclusion of patients who have significant affective symptoms from the schizophrenic category. Current interest in this area has derived largely from the development of sophisticated pharmacological treatment of affective disorders and findings suggesting a genetic association of schizoaffective disorder with the affective disorders and not with schizophrenia (Procci 1976).

Although many subtyping approaches suggested for schizophrenia depend primarily on cross-sectional description of symptoms to define categories, few of the diagnostic approaches suggest that the categories should actually be defined only cross-sectionally. Rather, longitudinal descriptive dimensions, such as course of disorder, are generally involved as well. The contribution of longitudinal data to subtype classification is discussed below.

**Subtypes Based on Longitudinal Characteristics**

Since the time Kraepelin described dementia praecox, course of disorder has been an important consideration in diagnosis. Kraepelin described a deteriorating course as a major reason for bringing together, under a single classification, syndromes that had many differences as well as similarities. Bleuler (1950) also adhered to the importance of the disorder's course; indeed, he took an even stronger stand than Kraepelin, stating that there was
never a "restitutio ad integrum" in schizophrenia.

The emphasis on course of disorder as a descriptive characteristic defining schizophrenia has been continued by many investigators. Langfeldt (1937), for example, classified schizophreniform disorders separately from true schizophrenia. He considered that a major differentiation between these was that true schizophrenics did not recover.

In spite of some consensus regarding chronicity in early concepts of schizophrenia, differences in course of disorder among schizophrenics have been noted from the time the disorder was first described. Kraepelin defined a large number of end states in dementia praecox, but he did not use them for subtyping. M. Bleuler (1974) has described in careful detail the many diverse patterns that the course of schizophrenia can take but again has not seen these patterns as central for establishing subtypes. Although course of disorder has been used on occasion to validate certain conventional subtypes (catatonic, hebephrenic, paranoid, simple), longitudinal findings relevant to these categories have been generally inconclusive.

In contrast to the approaches described above, several systems have actually used longitudinal characteristics of disorder as the major criterion for subtyping. One of the most important is the subclassification of schizophrenic patients according to their level of premorbid adjustment. The vast literature on premorbid adjustment (Strauss et al. 1977) has produced considerable evidence regarding the validity of this approach. Schizophrenics with a history of poor premorbid social adjustment tend to have a vastly different prognosis and symptom picture from those with good premorbic social adjustment. Different psychophysiologic, biochemical, and genetic characteristics may also be found in the two groups.

Another approach to subclassification on the basis of longitudinal characteristics stems from the view that continuities or shifts of state may in themselves reflect subtypes of the basic pathology underlying schizophrenia. It is possible, for example, to consider that the fundamental disorder suffered by schizophrenics is the inability to maintain psychological homeostasis (Vander Velde 1976). A good measure of this dysregulation of homeostasis is the frequency and depth of deviation in mental state and the rapidity or completeness of recovery. Clearly, schizophrenic patients vary greatly in their propensity for shifts in clinical state, and this aspect of the disorder may provide a valuable basis for subtyping.

This orientation has been especially developed by Sniezhnevsky (1968) and the Moscow school. Soviet investigators have described three major types of schizophrenia based on longitudinal descriptive criteria. The first type, episodic schizophrenia, is marked by periods of total or near total remission, the second type, shift-like, is marked by periods of partial remission, and the third type, sluggish, is marked by a generally unremitting course. The traditional syndromes are recognized but are considered to be of secondary importance, since it is believed that these can change in an individual as the disorder evolves, while course tends to be more constant.

Another effort at systematically demonstrating various clearly definable long-term patterns of course has recently been reported. Fiester, Docherty, and Bialos (1979), viewing hospitalization as reflecting symptomatic relapse, have shown that schizophrenic patients can be classified according to their relapse pattern. Four groups of rehospitalization patterns were reported: single episode patients, who sustained only one hospitalization; "epochs of risk" patients, who sustained clusters of short hospitalizations with relatively long intervals between clusters; revolving door patients, who had frequent, usually brief hospitalizations, evenly distributed throughout their course of illness; and prolonged episode patients, who experienced hospitalizations of very long duration and often spent considerably more of their time in the hospital than out of it. Descriptive longitudinal patterns such as these provide simple examples that are easily separable by inspection.

Recently the methods of descriptive psychiatry have been turned to systematic investigations of short- as well as long-term patterns of change and stability in the course of schizophrenia as a way of establishing subtypes. The detailed evolution of symptomatic change in patients during the process of relapse or remission can be traced by describing qualitative patterns of decompensation and recompensation. Docherty et al. (1978), for example, have noted that very similar stages of decompensation are described in diverse reports concerning the onset of psychosis. In explorations of this process, Docherty et al. observed the same stages in their own studies. Six such stages have been described: equilibrium, overextension, restricted consciousness, disinhibition, psychotic disorganization, and psychotic resolution.

There are a variety of ways in which patients can be subcategorized...
using longitudinal data obtained with a model such as this. For example, patients who develop and persist in a postpsychotic depression might be viewed as a group separate from other patients. In the model of Docherty et al., postpsychotic depression, which is descriptively the same as restricted consciousness, would be viewed as a stage in a more general longitudinal process. Patients diagnosed schizophrenic who remain in the stage of postpsychotic depression for prolonged periods might be designated as a specific subtype because of their particular course. Patients could also be classified into subtypes with regard to the rate, extent, and pattern of recovery if investigators adopted a categorical "state" model. In this manner, evolution of disorder—essentially ignored by most classification systems—could be incorporated into them.

Structures of Subtypes

The two descriptive approaches to subtyping schizophrenia described above focus primarily on whether longitudinal or cross-sectional information is the main basis for subtyping. In contrast, a structural orientation to thinking about subtypes focuses primarily on how data are organized—no matter what kind of data are considered important. Typological and dimensional models are the two main approaches to organizing data on diagnostic subtypes.

Although the details of these two structures can become distressingly abstract, each has very real and concrete implications. Typological subtype models are the most common. In these, each category is seen as distinctly different from the rest as in the traditional subtypes hebephrenic, paranoid, and catatonic. Recently, some investigators have questioned the validity of such typologic models (Kendell 1968; Strauss et al. 1979) and have advocated dimensional approaches.

In a dimensional subtype system, patients are classified in relation to their level on such dimensions as severity of agitation, psychosis, or withdrawal. Subtyping involves defining clusters or profiles for a group of people across dimensions, such as patients who are very psychotic and withdrawn but not very agitated. In using dimensional systems, investigators have generally recognized that people exist who have intermediate profiles and that the designation of subtypes may be more a convenience than an indication that distinct types exist. The evolution and implications of the typological and dimensional models have been discussed in detail elsewhere (Strauss 1973).

Although pure typological and dimensional subtype models exist (e.g., Kraepelin 1919; Lorr, Klett, and McNair 1963), there are two mixed models to subtyping that have become especially important recently—the multiaxial and hierarchical approaches.

Multiaxial Diagnosis. An accumulating series of investigations has demonstrated that the phenomenology of schizophrenia may best be conceptualized as consisting of several relatively independent processes or axes (Procci 1976; Schwartz, Myers, and Astrachan 1976; Strauss et al. 1977). Such a model suggests that all of these axes may be important in defining subtypes of schizophrenia. The following six axes have been suggested (Deniker 1978; Strauss, Carpenter, and Bartko 1974): positive symptoms, such as delusions and hallucinations; negative symptoms, such as apathy and withdrawal; neurotic symptoms, such as depression and anxiety; prior course of disorder; social relations function; and work function.

Each of the descriptive axes is somewhat independent of the others in its implications for etiology, treatment, and prognosis. For example, positive symptoms can occur from many etiologies and occur often, perhaps most often, in the absence of negative symptoms. Positive symptoms appear to respond relatively well to phenothiazines and sometimes to social contact. They have limited prognostic value (Strauss et al. 1977).

Negative symptoms, such as apathy and withdrawal, on the other hand, often have a vague onset, may be long-lasting, and may be especially difficult to treat. Negative symptoms might be a consequence of positive symptoms that occur for extended periods, a result of social or institutional responses to these symptoms, or relatively intrinsic to the individual personality structure as possibly indicated by the literature on premorbid adjustment. Since negative symptoms consist primarily of certain affective and social behavior characteristics, perhaps some redefinition of the negative symptom, neurotic, and social relations axes is needed.

If several axes exist that are, in fact, clinically important and relatively independent of each other, subtyping implies that all must be included in diagnosis. Thus, for example, a patient might be classified as an anxious, subchronic schizophrenic, with poor social relations and good work function.

It is possible that distribution patterns of axes might show certain clusters of association. Some symptoms, for example, may be most
often associated with certain levels of social relations function and a certain course of disorder. Although such clusters have often been assumed in the past, those clusters may have been largely artifacts of the psychological tendency to view all phenomena as neatly grouped whether they are or not.

Hierarchical Diagnosis. In contrast to multiaxial approaches, the hierarchical model for structuring subtypes generally involves viewing some subtypes as being antecedents to, or as more severe than, others. In one hierarchical approach (Menninger 1963), all psychopathology is seen as being on a continuum of severity of psychological disorganization. Schizophrenia is considered to be at the severe end of this health-sickness continuum with the traditional subtypes arranged in order within that particular segment. The severity continuum may also imply a temporal hierarchy as in the earlier described model of Docherty et al. (1978), in which patients are seen as passing through stages of decompensation. There is evidence that some form of hierarchical subtyping may in fact be the most accurate representation of descriptive clinical data (Bellak 1958; Docherty et al. 1978; Foulds 1976; Strauss et al., in preparation).

Conclusions

Advances in descriptive psychiatry have made possible the collection of detailed reliable clinical data from representative patient samples. This capacity has helped to demonstrate the diversity of strategies available for using descriptive data to define subtypes.

Now that these cross-sectional, long- and short-term longitudinal, typological, dimensional, multiaxial, and hierarchical strategies have been defined and preliminary assessments of their potential value have been carried out, more thorough validation attempts are required to help select among them. Such research can take three forms.

Perhaps the simplest approach is for any study of schizophrenia to use several subtyping approaches to determine which is the most valid in terms of etiology, pathogenesis, treatment response, and prognosis. A second approach is to study representative samples of psychiatric patients with careful descriptive measures to determine the distribution patterns of the various characteristics in such populations. In this way, the naturally occurring relationships among various axes and the structure of potential subtype hierarchies may be determined. A third approach for subtype validation is to carry out small N studies in which a few patients are intensively investigated to determine the relationships among diagnostic axes and states as they evolve over time; different "types" of patients as defined by these characteristics could then be compared.

Because the range of alternative subtyping approaches is great, however, the process of validation must be guided not just by exploratory descriptive mapping, but by testing major theories about processes underlying subtype distinctions. For example, if homeostatic instability were viewed as a major determinant of subtype distinction, patient groups that represent extremes on this characteristic might be selected for study. In this way, the power of descriptive approaches for data collection and analysis can be most effectively linked to theory and clinical judgment.

References


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