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Understanding outcome in schizophrenia is important for choosing among the competing concepts of this disorder and for evaluation of treatment methods. Nevertheless, there is much disagreement and confusion about the nature of outcome in schizophrenia. This report describes features of diagnosis and outcome that contribute to this confusion and suggests a framework of key diagnostic and outcome criteria to provide a basis for reporting, interpreting and comparing the findings of outcome studies. Analysis of data from several of the more comprehensive studies using this framework demonstrates key characteristics of outcome in schizophrenia. (Author)

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Understanding outcome in schizophrenia is important in clarifying the nature of this disorder and in evaluating treatment methods. Conceptually, there is much disagreement and confusion regarding the characteristics of outcome in schizophrenia. At one extreme are those who hold that poor outcome is an integral part of the concept. Kraepelin used the notion of poor outcome as a validating criterion of dementia praecox (1919). Although Bleuler modified the concept somewhat and gave it the name schizophrenia, he was even more adamant than Kraepelin that there was never total remission in this disorder (1950). Kleist (1960) and Leonhard (1961) even claim that if the patient recovers, he cannot have been schizophrenic. Also linking poor outcome to "true" schizophrenia, Langfeldt (1969), Faergeman (1963), and Vaillant (1964) define a separate group of schizophrenia-like disorders with good outcome ("schizophreniform psychoses," "psychogenic psychoses") that presumably have a different etiology and pathogenesis.

In contrast to the poor outcome concept of schizophrenia, Wittman, (1941), Phillips (1966) and others have used outcome as one basis for defining benign (reactive) and malignant (process subtypes with schizophrenia.

Adolph Meyer's view (1922) that schizophrenia is not linked to any particular outcome has been influential in American psychiatry. Besides its conceptual importance, this view has served as a counter-force to the fatalism that often accompanies a schizophrenic diagnosis.

In addition to contributing to the resolution of these important conceptual issues, understanding outcome in schizophrenia can provide the basis for evaluating treatment methods and specifying the controls necessary for such evaluation (Guze, 1970).

Over 800 studies of outcome in schizophrenia have been reported. Many of these provide important clues to the solutions of these problems Zubin, 1961). Nevertheless, disagreement and confusion persist (Stromgren, 1961). Two major sources of this confusion are the failure to use comparable diagnostic criteria for schizophrenia and the tendency to use misleading, oversimplified concepts of outcome. These problems hinder interpretation of outcome findings and the comparison of results from different studies.

Problems in Defining Diagnostic Criteria

Since diagnostic criteria vary considerably, in any study of outcome in schizophrenia it is necessary to specify which criteria are used. The more operational the criteria, the more the results can be interpreted and compared. Criteria, such as "agreement by two senior staff members," or "hospital discharge diagnosis of schizophrenia" are inadequate. Patient cohorts, thus defined, can, in fact, be quite dissimilar (Kendell, 1971; Kreitman, 1961).

The criteria for the diagnosis of schizophrenia stated in the Diagnostic and Statistical Manual of the APA are an improvement over mere statements of diagnostic category alone. However, these also are not operational to provide a sound basis for defining comparable cohorts of patients.

Among the most operational diagnostic criteria are symptoms and signs. The first rank symptoms considered pathognomonic of schizophrenia by Kurt Schneider (1959) provide a set of diagnostic criteria that are particulary clearly defined. Other symptom criteria, such as those of Kraepelin, 1919; Meyer-Gross, 1954; Bleuler, 1960; Langfeldt, 1969; and Leonhard, 1961) are not as operationally defined as those of Schneider, but are described in detail and are commonly used.

Some diagnostic systems define a relatively narrow range of patients as schizophrenic. Stephens and Astrup (1965) and others have claimed that narrower definitions of schizophrenia permit more precise prediction of outcome. For example, the narrow diagnostic criteria of Langfeldt appear to select a group of patients with similar outcome. Results of several studies suggest that Langfeldt's criteria can be used to discriminate patients who will remit from those who will not (Astrup and Noreik, 1966; Achte, 1967; Stephens and Astrup, 1965; Langfeldt, Eitenger, et al., 1958). Other diagnostic criteria, such as those of Meyer-Gross, Bleuler, and especially the concepts of schizophrenia often used in the United States, include a considerably broader group of patients and may, for that reason alone, have little relationship to outcome.

Besides type of symptoms, another factor often included, explicitly or implicitly, as a criterion of outcome is prior duration of symptoms. This criterion confuses the relationship of diagnosis to chronicity since it may provide only a nonspecific historical measure of the tendency of symptoms to persist. If prior duration of symptoms is included as a criterion in the diagnosis of schizophrenia, the claim that schizophrenia has a poor outcome may only be a tautology - that symptoms that have lasted a long time tend to last a long time. Although in some disorders prior duration of symptoms may help to differentiate particular disease entities - for example, in distinguishing pneumococcal pneumonia from pulmonary tuberculosis - in others, prior duration of symptoms is diagnostically nonspecific. This is true, for example, in a number of pulmonary disorders where chronicity of symptoms is more related to the individual's general level of health and situational factors, than to a particular diagnostic entity.

Prior duration of symptoms is a powerful predictor of future chronicity within schizophrenia (Chase & Silverman, 1941; Simon & Wirt, 1961) and in a wide variety of other psychiatric disorders (Ernst, 1959; Pollitt, 1957; Noreik, 1970; Kringlen, 1970; Goodwin, 1969). For this reason, if it is included implicitly or explicitly as a diagnostic criterion of schizophrenia, the finding of poor outcome may add little to an understanding of the nature of the disorder.

In some systems for the diagnosis of schizophrenia, previous duration of illness is an explicit criterion. Faergeman (1963),

for example, states that the diagnosis of schizophrenia cannot be made on presenting symptoms alone. Labourcarié (1958), and Vaillant (1964) also support this view. Others, including Kraepelin (1919), Bleuler (1950), Leonard (1961), Langfeldt (1937), and Kurt Schneider (1959) have claimed that the diagnosis of schizophrenia can be made entirely on the basis of presenting symptoms and signs. However, even when investigators study outcome using symptom diagnostic criteria alone, prior duration of symptoms often unwittingly becomes a factor. For example, if diagnostic evaluations are made a month or longer after admission, the more transiently symptomatic patients may have been discharged and automatically excluded from the study. If diagnostic evaluations are made at discharge, the tendency of symptoms to persist during hospitalization may inadvertently influence diagnosis (Astrup & Noreik, 1966).

Some investigators have tried to control prior chronicity by studying only patients with "recent onset." Eitinger (1959) used such a criterion, but included patients who had onset of symptoms up to four years prior to their evaluation. Studying only first admission patients is another method to attempt to eliminate prior chronicity. Our analysis of the data of one such study by Achte (1967) demonstrates that first admission patients had the first appearance of psychotic symptoms an average of fourteen months before their initial hospitalization. First admission is not, therefore, a sufficient criterion to rule out prior chronicity.

Because of the predictive power of prior duration of symptoms and its frequent explicit or implicit inclusion in the diagnostic process, this factor must be considered in all studies of outcome in schizophrenia. A combination of measures, including prior hospitalization, first appearance of psychotic symptoms, and duration of continuous symptoms prior to hospitalization is probably the best means for accomplishing this.

Characteristics of Outcome

A second major hindrance to understanding the fate of schizophrenic patients arises from inadequate description of the characteristics of outcome. These problems include the selection of outcome criteria, scaling of results, and the evaluation of relationships among different areas of outcome dysfunction.

1. Selection of outcome criteria.

Oversimplified characterization of outcome is a particularly important problem. A common example is the use of a single global measure to describe patients at follow-up as improved, unchanged, or deteriorated. Global measures provide a gross estimate of outcome status, but are difficult to define operationally in an adequate manner since they usually assume a fixed relationship between hospitalization and several areas of function, which is not supported empirically. Such a concept implies that various aspects of a patient's functioning, such as his symptoms, social relationships, ability to work, and length of hospitalization can be considered as rising and falling together. There is considerable evidence, both anecdotal

and statistical, that this assumption is not justified. Kraepelin (1919), Sullivan (1918), and others described the distinction between clinical and social recovery. Kelley and Sargant (1965), and Brown et al. (1966) have demonstrated with refined methodology that two outcome criteria. work functioning and symptom level, are in many ways independent of each other. Other areas of outcome function also appear to vary with considerable independence. For example, patients frequently remain hospitalized although they have little evidence of residual psychiatric disorder (Garrett, Loween, McKeow, 1957).

Another criterion frequently used as the sole measure of outcome is hospitalization. This measure is appealing because it is easily and reliably obtained on large numbers of patients. Freeman and Simmons. (1963) have shown that it does reflect, to some extent, the individual's level of symptoms and ability to function. An outcome index has been devised using a combined measure of both duration of hospitalization and frequency of admission (Burdock and Hardesty, 1961). There is considerable evidence, however, to show that hospitalization is not a sufficient single measure of the pathological process in schizophrenia. In one study, (Strauss-Carpenter, 1971) hospitalization correlated to an intermediate degree ($r = .41$, $p = .001$,) with the sum of the other outcome variables. Although this correlation is significant, the relationship accounts for only seventeen percent of the outcome variance.

Hospitalization is affected by many variables not directly related to the patient's psychopathology such as administrative

needs of the hospital (Brooke, 1962); hospital admission and discharge policies (Pasamanick et al., 1964; Langsley, 1968); the distance the patient lives from the hospital (Gruenberg, 1964; Freudenberg et al., 1957); the type and availability of rehabilitative or family resources (Brown, 1959; Norris, 1956); the social class of the patient (Meyers and Bean, 1968); and the role the individual occupies in his family (Hammer, 1963).

Many patients hospitalized over long periods actually have no marked handicap, and would be capable, with some assistance, of living outside of the hospital environment (Garrett, Loween, McKeown, 1957). Some schizophrenic patients discharged from the hospital lead only a vegative existence, but are not rehospitalized. Other discharged patients make major attempts at successful social and occupational functioning and often meet stresses that precipiate their return to the hospital, but when discharged again return to high levels of function (Lamb & Goertzel, 1971; Penick & Buonpane, 1971). Finally, there is evidence that long-term hospitalization is not simply the result, but is a cause of deteriomation functioning (Wing and Brown, 1961; Brown and Wing, 1962; Wing, 1962; Goffman, 1961).

It seems apparent that, although hospitalization gives some measure of the need for care, it is affected by too many other variables to be used as the only measure of outcome in schizophrenia.

A more adequate picture of outcome status is provided when several key measures are used simultaneously. Four areas that

together provide a comprehensive picture of follow-up status in schizophrenia are: work function, social relationships, symptomatology, and hospitalization. Each of these measures contribute information on a different aspect of the individual's life--each has its value and limitations.

Evaluation of work function gives a measure of the ability to fill one type of role expectation. Duration of employment during the follow-up period can be evaluated easily with great reliability and validity (Brown, Bone et al., 1966; Keating et al., 1950). It is important for interpretating this measure that the investigator specify whether he is evaluating total duration of employment over the follow-up period (time in the hospital is then counted as unemployment) or percent of time employed when out of the hospital, thus separating measures of hospitalization from measures of employment (Monck, 1963).

As with hospitalization, work function as an outcome criterion has limitations since it can be affected by many variables not directly connected to the individual's psychopathology. Lack of employment opportunities in the community, prejudice against hiring ex-psychiatric patients, social class, and age of patients (Meyers and Be 1968) are all variables that influence employment but are not an intrinsic part of the psychopathology. Motivation to return to work as determined by need and availability of alternate means of support, are other factors not directly related to psychopathology that affect employment measures.

Further complications occur in attempting to evaluate the functioning of housewives or workers in a family business or in protected work programs. In these situations, low levels of function can be concealed by family members or others filling in for an inadequately functioning person (Meyers and Bean, 1968; Brown et al., 1966; Cole and Shupe, 1970).

Evaluation of social relationships provides information on an area more directly related to the concept of schizophrenia than measures of hospitalization and employment. Autism (Bleuler, 1950), and praecox gefühl (Rümke, 1957) are two of the concepts of inability to relate socially that have also been considered important diagnostic criteria of schizophrenia. Social relationships are both more an intrinsic part of the concept of schizophrenia than either hospitalization or employment and more difficult to evaluate. For example, merely evaluating whether a person has friends, or how many friends he has is not a useful measure of social contacts unless an operational definition of friendship is given. Many people seen in follow-up include as friends, neighbors whose names are unknown and others with whom they have only the briefest contacts. Evaluating the number of social contacts the person has in a week, together with determining the place where these are held, and the type of activity undertaken, gives a far more satisfactory record of social relationships. These three kinds of data help to separate, for instance, individuals who only say "hello" to the neighbor every morning when collecting the mail from someone who goes out shopping with a friend or who

has coffee at a friend's house. As with hospitalization and employment, social function as an outcome measure is limited, in that it is affected by environmental factors not directly related to psychopathology. These include cultural norms and absence of opportunity for social contacts. These factors are especially important in comparing patient cohorts from different cultural backgrounds and different socio-economic groups.

The fourth area of evaluation necessary for obtaining a comprehensive picture of outcome function is symptomatology. Symptomatology at follow-up is most central to assessment of the chronicity of the schizophrenic process. On the other hand, it is the variable least often evaluated, probably because of the effort required to obtain complete and reliable assessments. The problem of obtaining reliable symptom evaluations at follow-up is made especially difficult because even clear-cut psychotic symptoms that may have occurred in the acute state of the illness frequently change over time to vague symptoms and signs such as apathy or lack of personal warmth (Kelley and Sargant, 1965). Semi-structured mental status interview schedules can help improve the reliability of symptom evaluation (Spitzer, et al., 1964; Wing, 1967; WHO, 1972), but even these methods will require further development to be made suitable for evaluating the more subtle manifestations of schizophrenia at follow-up.

Together, these four measures of outcome--hospitalization, employment, social relationships, and symptomatology--provide a far more adequate

picture of outcome in schizophrenia than any single measure. Still more detailed evaluations can provide greater richness of information. For example, employment data can be enriched by recording promotions and job changes; the evaluation of social relationships by estimating closeness of friendhsips. Other sources of further valuable detail are provided by obtaining data from several sources (May & Tuma, 1964; Keniston et al., 1971), consideration of pertinent environmental conditions, baseline premorbid function, and variations in the course of illness during the outcome period. A more complete and human component of outcome can be added by evaluation of other areas, such as happiness or fullness of life, or detailed accounts of the experiences over time of small numbers of patients. But, for the study of large cohorts of patients, the four basic measures provide a broad, multidimensional picture of outcome.

2. Scaling of Outcome Ratings.

Many reports of outcome in schizophrenia dichotomize patient function into categories of "good" or "poor." This can give a misleading impression that patients fit into one of two categories, rather than being located somewhere on a continuum between no dysfunction and severe dysfunction. It can also lead to the assumption that there is a group of schizophrenics with "poor" outcome, and another group with "good" outcome. In fact, the frequency distribution of dysfunction severity in schizophrenic outcome is far more complex. To describe both intermediate and extreme levels of dysfunction more adequately, four- or five-point scales of outcome are useful. Even

with these scales, however, interpretations regarding the distribution modes are tentative since the scaling criteria influence the number of patients falling into each scale point. In scales with several rating points, the modality of the results (e.g., into two or three peaks) will be misleading if the scale points do not represent equal intervals. If the midpoint of a three-point scale is very narrow, for example, the distribution of results will be bimodal; if wide, a unimodal distribution may result. Specifying the criteria for each point mitigates this problem somewhat by aiding interpretation regarding the interval widths.

Still another way in which scaling influences results was described by Levitt (1957) who showed that the more points an outcome rating scale has, the more likely patients will be rated as improved, irrespective of their psychiatric status.

Because of these factors, the ability to interpret and compare outcome findings is greatly enhanced by use of scales with four or five points for which the categories are evenly spread and operationally defined..

Interrelationships of the Areas of Outcome Dysfunction

If one questions the assumption that outcome is a unitary phenomenon, the interrelationships of the component areas becomes of interest. The degree of relationship or independence among the component areas can be evaluated in terms of their levels of intercorrelation. These give valuable clues regarding the functional relationships among the components and suggest hypotheses about the

process of outcome. When interpreting the meaning of intercorrelations, the degree of relationship, not just its statistical significance, must be evaluated (Spitzer and Cohen, 1968).

The features of diagnosis and outcome described above suggest a basic framework for data reporting to facilitate meaningful interpretation and comparison of outcome findings. This framework requires (1) reporting the criteria used for diagnosing schizophrenia and measures of the prior duration of illness of the patient cohort; (2) reporting data on the four areas of outcome dysfunction; (3) using scaled results; and (4) describing the interrelationships of the areas of dysfunction.

This framework provides the basis for examining other complex features of outcome. Among these features are: evaluation of the course of illness over time, the degree to which outcome results depend on the duration between onset of illness and time at which outcome is measured, the relationships of premorbid factors and demographic factors to outcome, the evaluation of the relationship of schizophrenic outcome to outcome in other disorders and to normal function, and the difficult problem of whether an individual at some time in follow-up has neither residual dysfunction nor vulnerability to recurrence. But these problems require knowledge about the more basic aspects of outcome before they can be answered. Using the framework of diagnostic and outcome criteria described above, what conclusions can be drawn about outcome in schizophrenia?

The Outcome of Schizophrenia

To draw conclusions about outcome in schizophrenia, groups of patients selected by different diagnostic criteria and with different prior durations of illness, should be compared to determine the relationships between these factors and the four areas of outcome. In fact, when studies of outcome are compared, certain conclusions can be drawn about the nature of outcome in schizophrenia. At the same time, areas of particular difficulty in generalizing from outcome studies also become clear. To demonstrate these conclusions and problems, several outcome studies were compared to determine the answers to three major issues: (1) The degree of outcome dysfunction in schizophrenia; (2) The degree of homogeneity of outcome in schizophrenia, including investigation of existence of particular distribution curves such as a bimodal curve that would suggest two distinctive disorders; and (3) The levels of intercorrelation among the four areas of dysfunction to determine if they represent a unitary outcome process, or four processes.

To describe schizophrenic outcome in these terms, studies of schizophrenia were selected that reported scaled outcome scores with defined scale points. These studies were among the more detailed of over 200 studies reviewed. Because of their detail they offered the most basis for comparison. Unfortunately, although the selected studies often did describe diagnostic and prior chronicity criteria, and all used scaled outcome criteria, they did not reach the ideal for comparison, since a global measure was the only outcome criterion that all had in common. Nevertheless, even this allowed a gross

comparison of findings and pointed up conclusions that can be drawn and features that will have to be corrected if future outcome studies are to be more informative. The diagnostic criteria used in each study and measures of prior duration of illness, where reported, are described in Figure 1. Global outcome criteria in four of the

/Insert Figure 1 about here/

studies were reported by the investigators in comparable four-point scales. In the other two cases, we converted the five-point scale used to four-points by splitting the middle category assigning half to each adjacent category. For purposes of analysis, the four points of the outcome scale were given values 0, 33, 67, 100. Although these adjustments represent approximations, they did not appear to distort the data, either clinically or statistically.

The Level of Outcome Dysfunction in Schizophrenia

Because the selected studies used scaled outcome ratings, it was possible to calculate the mean outcome values for each of the cohorts. The results of this comparison are presented in Table 1.

/Insert Table 1 about here/

This table demonstrates the wide variation in the mean levels of outcome found and dispels any notion that there is an identical outcome for all cohorts of schizophrenics. The disparity among the findings of the different studies is striking. Diagnostic criteria and prior duration of illness both appear to affect results. There is a gradual improvement of mean outcome scores as diagnostic criteria shift from those defined by Langfeldt to the diagnostic criteria

of Meyer-Gross, and those of the Diagnostic and Statistical Manual of the APA. More acute patients (for example, first admissions) have better outcome than more chronic patients (those previously admitted to hospitals), but this difference does not appear as important in predicting outcome as do the diagnostic criteria.

Because of its detailed presentation of raw data, it was possible from one study (Achte, 1967) to evaluate the relationship between prior duration of illness, outcome, and diagnosis more carefully. Achte used Langfeldt's symptom criteria to diagnose a cohort of first admission patients as definite schizophrenia, possible schizophrenia, or, schizophreniform psychosis. To carry out the correlations, we scaled the diagnoses of the 170 patients studied in keeping with Achte's definitions, giving the diagnosis of schizophreniform psychosis a value of 1, schizophrenia ? a value of 2, and certain schizophrenia, a value of 3. Intercorrelations (Kendell's Tau) were calculated among outcome, prior duration, and diagnosis. The results demonstrated that the highest relationship was between schizophrenic diagnosis and prior duration (Tau = .52, p .001). There were lower but significant correlations between prior duration of illness and outcome (Tau = .33, p .001); and between diagnosis and poor outcome (Tau = .31, p .001). To evaluate these interrelationships further, we selected all patients from the three diagnostic groups, that could be matched for prior duration of illness, and calculated the differences in mean outcome scores of these three groups. The results were striking. Using Achte's five-point outcome scale where a score of five signifies

worst outcome, the mean outcome of the schizophreniform psychosis group was 2.1, of the intermediate schizophrenia ? group was 2.75, and of the schizophrenia group was 3.58. The differences were significant ($F = 9.56$, 2/167 d.f., p .001). The correlation (Tau) between diagnosis and outcome was significant (Tau = .40, p .001).

The different levels of mean outcome scores from the six studies describe the wide range of outcome characteristics of schizophrenia--from severe to minimal dysfunction. These differences appear to be a function of criteria and previous duration of symptoms. The comparison of these studies supports the superior ability of Langfeldt's diagnostic criteria to predict outcome, irrespective of prior duration of illness. Since this was the only diagnostic system of those compared able to do this to an impressive degree, it will be important to investigate more carefully the source of this predictive power. Although the diagnostic criteria themselves appear to be the crucial variables, the successful prediction of outcome might have arisen from possible errors in methodology (the Achte diagnoses were made from case records, after the patients had been discharged), or from existence of unrecognized important prognostic factors.

The Frequency Distribution of Outcome Scores

The frequency distribution of global outcome ratings for each study are shown in Tables 2-4. These tables demonstrate another sense in which it is misleading to define "the outcome of schizophrenia." They show considerable distribution for each patient cohort--except the Langfeldt schizophrenics--along the entire continuum of outcome

dysfunction. These distributions suggest that the most accurate way to describe the outcome of most schizophrenic groups is in terms of a mean outcome score and a measure of dispersion, rather than as a uniform outcome.

/Insert Tables 2, 3, and 4 about here/

The different shapes of these curves also demonstrate how misleading it might be to provide only a mean outcome and how difficult it is to demonstrate any consistent modality of outcome. The different modalities are particularly striking in Table 4, where two studies demonstrate exactly opposite modal distributions of schizophrenic outcome. The problems of interpretation of these differences could be greatly reduced by the use of more standardized outcome criteria in the different studies.

One individual area of outcome dysfunction, employment, was described in enough detail to permit comparison between two studies. The results are given in Table 5. They show that for these cohorts employment outcome has curves and means similar to those of the global measures in relation to diagnostic criteria and prior duration of illness.

/Insert Table 5 about here/

INTERRELATIONSHIP OF THE DIFFERENT AREAS OF DYSFUNCTION

A few outcome studies have reported interrelationships among different areas of outcome dysfunction. Table 6 compares their results. The intercorrelations in all cases are statistically significant. The levels of intercorrelation suggest a different,

and generally intermediate, degrees of relationship among the variables.

/Insert Table 6 about here/

Although the absence of high levels of intercorrelation among outcome measures could be a result of measurement error, this seems unlikely, since the interrater reliabilities of the outcome measures reported in the studies were high. Instead, the intermediate levels of the intercorrelations suggest that while there is a significant relationship among the outcome variables, each has considerable independence as well. This hypothesis is supported by more detailed clinical data as well that demonstrate some of the reasons for the independence (Strauss-Carpenter, 1972). The findings indicate that each area of dysfunction is connected to an intermediate degree with other areas of dysfunction, but is also affected by its own independent system of variables. These results suggest that the areas of outcome dysfunction are best considered as open-linked systems. Freeman and Simmons (1963), Cumming (1963), Meyers and Bean (1968) and others have begun to map some of the functional links between particular areas of outcome dysfunction. Further clarification of these links will be extremely helpful in providing greater understanding of the nature of outcome disability.

CONCLUSIONS

To understand the nature of outcome in schizophrenia, it is essential to consider and report key variables of diagnostic criteria, prior duation of illness, and outcome criteria. Such consideration could be carried out most effectively by conducting outcome studies following a standardized model that would serve as common denominator for

interpretation and comparison of results. Such a model might include the reporting of:

1. Diagnostic evaluation
    a. Signs and symptoms (for example, in the one month prior to admission), including inquiry into the major areas of psychopathology (hallucinations, delusions, depression, elation, etc.), and into characteristic symptoms such as those described by Langfeldt.
    b. Duration of prior psychopathology, including (1) number and total duration of previous psychiatric hospitalizations; (2) an estimate of the continuous duration of psychotic symptoms prior to admission; and (3) length of time from first evidence of psychotic symptoms to admission.
2. Evaluation of outcome
    a. Evaluation of outcome dysfunction in at least four areas: employment (percentage of time outside of hospital that the patient is employed); social function; severity of symptomatology; and duration of hospitalization (for example, during the year prior to outcome evaluation).
    b. Use of a four-point scale with defined scale points for evaluating each area.

Use of a standardized basic methodology of this sort in different centers could provide a basis for more meaningful comparison of findings of outcome studies and eventual understanding of the crucial variables in the outcome of schizophrenia. A comparison of of outcome studies that report their findings in adequate detail provides a beginning sketch of the characteristics of outcome in schizophrenia. First, the level of global outcome dysfunction in schizophrenia varies from severe dysfunction to minimal dysfunction depending on the diagnostic criteria used, and, on prior duration of illness.

Second, the frequency distribution of global outcome dysfunction also varies considerably depending on the diagnostic criteria and prior duration of illness; but within each cohort, except those diagnosed by Langfeldt's criteria, there is also a wide variation of level of dysfunction across patients. Langfeld's criteria of schizophrenia appear to be the most powerful in predicting poor outcome, both in terms of mean level and narrowest distribution of scores.

Third, the four areas of outcome function in schizophrenia appear to represent open-linked systems--each related both to presence of schizophrenia and to its own system of variables as well.

Most crucially, the comparison of outcome studies demonstrates that schizophrenic outcome can be described and understood in a meaningful way only if the complex relationships among the diagnostic criteria, prior duration of illness, and characteristics of outcome are considered. Outcome is not a thing; it is a group of complex processes.

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