

Stress, Social Supports, and Schizophrenic Disorders: Toward an Interactional Model

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Abstract

The present article proposes an interactional model of schizophrenic disorders in which three parameters of *stressors* (e.g. stressor category, stressor content, stressor descriptors) interact with four parameters of *social networks/supports* (e.g. structure, interactional properties, qualitative properties, functional indices) to produce a *stress state* characterized by positions along three orthogonal dimensions: overload-underload, positive-negative affect, high arousal-low arousal. The stress state, it is speculated, is reciprocally related to various clinical dimensions, functional system impairments, quantitative response parameters, and qualitative response parameters which constitute the "schizophrenic" disorder. The basic point of the model is that the formative, precipitative, expressive, and maintaining forces of schizophrenic-type disorders are influenced by the simultaneous interaction of stressors, supports, and stress states.

The medical and behavioral sciences are entering an era which offers the promise of exciting developments that will affect our understanding and possible control of severe mental disorders. Research paradigms increasingly involve models of behavior that emphasize the simultaneous interaction between organismic and environmental variables. This viewpoint is in contrast to older perspectives that focused on either organismic variables (e.g., personality theories, biochemical theories, constitutional theories) or environmental variables (e.g., radical behaviorism) to the exclu-

sion of their interactional properties.

The new paradigm has been variously termed an ecological model, an interactional model, and a biosocial model of behavior (see Marsella and Higginbotham 1973; Ekehammar, 1974; Marsella and Higginbotham, in press).

Kurt Lewin (1936), one of the pioneers in this area, has stated:

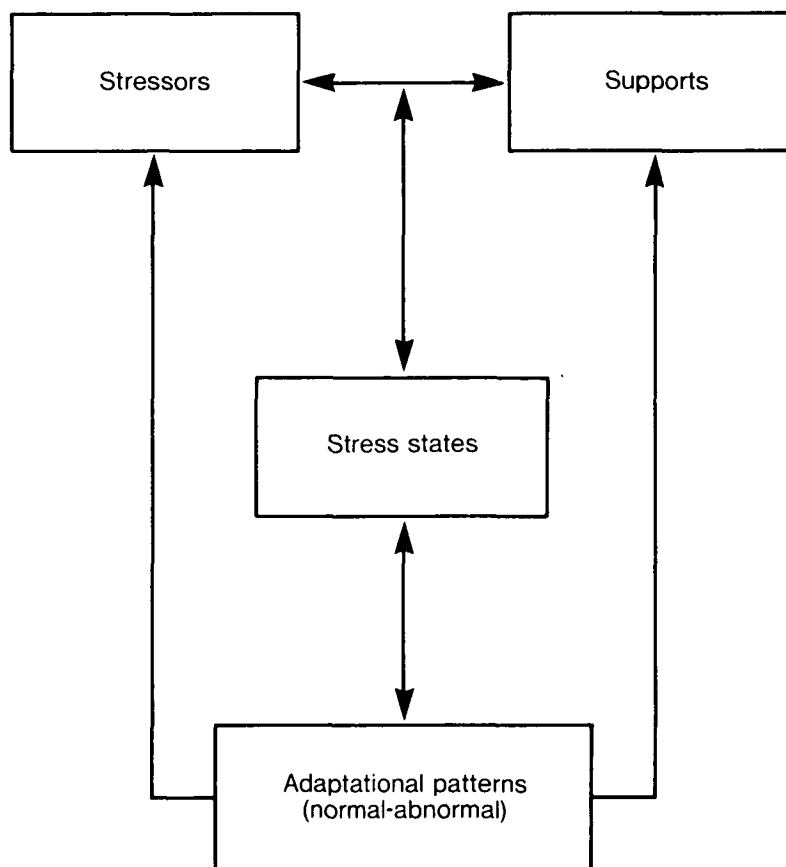
In psychology one can begin to describe the whole situation by roughly distinguishing the person (P) and the environment (E). Every psychological event depends upon the state of the person and at the same time on the environment, although their relative importance is different in different cases. . . . Every scientific psychology must take into account whole situations, i.e., the state of both person and environment. [p. 12]

Others who espoused similar philosophies included Henry Murray (1938), Andreas Angyal (1941), and Egon Brunswik (1957), with their concepts of "need press," the "biosphere," and "probabilistic functionalism," respectively. More modern exponents of interactional positions include John Dawson (1972), Roger Barker (1968), John Berry (1977), and Endler and Magnusson (1976).

Beginning in 1967, a series of studies on interactional theories of psychopathology were carried out in the Philippines (e.g., Marsella, Escudero, and Santiago 1969; Marsella, Escudero, and Gordon 1972; Marsella, Escudero, and Brennan 1975), Korea (e.g., Marsella and Kim 1974), and Taiwan

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Figure 1. Basic components of proposed interactional model of schizophrenic disorders



(Hwang 1976). These studies were based on a conceptual framework which considered patterns of psychopathology to be a function of the interaction of various stresses and coping strategies. The forms of psychopathology were thought to be shaped by the interaction of stresses associated with various functional areas of life (e.g., housing, employment, marriage, interpersonal relations, and nutrition) and coping sources (e.g., philosophies of life, crisis behavior patterns, and social resources). Through the use of mul-

tivariate data processing procedures such as factor analysis and regression analysis, it was possible to relate certain patterns of psychopathology to the interface between various stresses and coping strategies. Adaptations of these ideas have been posited more recently by Andrews et al. (1978), Cobb (1976), Dean and Lin (1977), Eaton (1978), Johnson and Sarason (1979), and Zubin and Spring (1977).

The present article extends some of the previous studies to a more elaborate model of psychopathol-

ogy with special emphasis on schizophrenic disorders. Figure 1 displays the major components of the proposed model.

Stress and Stressors

The research literature on stress has now reached such enormous proportions that any effort to portray it in some systematic or organized form may be frustrated. It simply subsumes too many concepts and too many disciplinary areas of inquiry. Cofer and Appley

(1964) recognized this problem years ago when they stated that stress had

all but preempted a field previously shared by a number of concepts. . . . It is as though, when the word stress came into vogue, each investigator who had been working with a concept he felt was closely related substituted the word stress for it and continued in his same line of investigation. [p. 441, p. 449]

The term "stress" came into vogue in the early 1950s with the work of Wolff and his colleagues at the University of Cornell (Wolff, Wolf, and Hare 1950). The next two decades witnessed an explosion of publications on stress.

Our current knowledge about stress developed largely from the work of early pioneers in physiology and medicine including Charles Darwin, Claude Bernard, Walter Cannon, Helen Flanders Dunbar, Franz Alexander, and Hans Selye. Selye's work was of special importance because he posited a universal human response to stressors. This response—termed the "general adaptation syndrome"—was considered to be invariant, regardless of the stressors that evoked it. A problem with this concept was its inability to account for the specific disorders that individuals developed. As a result, it was necessary to posit two conditions for a given disorder: (1) a generalized response pattern theory and (2) a specific response pattern theory. Although researchers have seldom disagreed with Selye's notions about the changes that occur in the "general adaptation syndrome," they have suggested a number of different theories to account for the specific disorders that develop. These theories variously emphasize (1) genetic weaknesses, (2) acquired

vulnerabilities, (3) acquired organ-emotional response patterns, and (4) personality pattern determinants.

In the present article, schizophrenic-type disorders may be considered "adaptational" disorders—response patterns to psychological and physiological states or conditions of stress. These conditions are elicited by external/internal stimulus patterns or stressors. "Stressor" represents "any event/object/process that elicits a state of change in an organismic system." The particular pattern of schizophrenic disorder that develops is a function of the stressor/stress interactions. This pattern is in a continual state of change, although the variations may be minor. If we are to understand the various clinical parameters associated with schizophrenic-type disorders (e.g., symptom displays, disability profiles, courses, prognoses), it is necessary first to delineate those parameters of the stressors, stresses, and support networks that may be critical in the proposed model.

Stressor Parameters

Although numerous dimensions of stress could be explored in an effort to link stress and schizophrenia, we will emphasize three parameters: category, content, and descriptors.

Stressor Category. Stressor category refers to the particular life functioning area from which the stressors are emanating. For example, stressors might be associated with such specific areas of functioning as housing, employment, health, marriage, child rearing, recreation, nutrition, and interpersonal relations. Obviously,

these are not discrete categories, and although one category may emerge as a major source of stressors, it can eventually carry over into other categories of functioning. Nevertheless, these categories do provide a beginning point for referencing the contextual source of various stressors. It is certainly possible that specific categories may be distinctly linked to particular patterns of stressful experience by posing patterns of stressors which are unique.

Stressor Content. Stressor content refers to the particular type of stressor that develops in a given category—for example, "loss" of job, spouse, status, or wealth; other possibilities include "confusion" over roles, "conflict" in expectations, "frustration" due to blocked goal seeking, and "discrepancies" between certain aspiration-achievement patterns in employment, housing, and marriage. The stressor content essentially focuses on the quality of the "demand" characteristics of the stressor. Within this context, stressor content can be related to certain response patterns.

At a more general level of analysis, stressor content can be classified in the following categories: (1) acculturation stressors, (2) role conflict stressors, (3) goal-striving discrepancy stressors, (4) value conflict stressors, (5) life change stressors, (6) role deprivation stressors, (7) noxious stressors (e.g., noise, temperature, toxins), (8) social change stressors, and (9) nutritional deprivation stressors. As these examples indicate, stressors can be related to a spectrum of situations that involve conflict, deprivation, frustration, and confusion.

Stressor Descriptors. Stressor descriptors refer to various parameters of stressors which are capable of being measured. As noted previously, the stressor descriptors can be applied to biological, psychological, and sociological levels of functioning. Some of the more important parameters include

- Frequency—How often does the stressor occur?
- Intensity—How much demand does the stressor have?
- Duration—How long does the stressor last?
- Shape—Is the stressor sporadic, continuous, ascending, descending, linear, or curvilinear?
- Complexity—Is the stressor complex (i.e., additive, multiplicative)?
- Discriminability—Is the stressor interpretable and/or identifiable?
- Controllability—Is the stressor capable of being controlled by either personal or social responses?
- Familiarity—Is the stressor familiar? Has the organism had previous experience with the stressor?
- Predictability—Is the stressor predictable or consistent?
- Conflict—Does the stressor have positive and negative valences?

Stress States

Stress states are the organismic experiential conditions that emerge from the interaction of stressors and supports. Stress states are experienced at biological, psychological, and sociological levels of functioning much as stressors and

supports exist at multiple levels.¹ A number of stress state dimensions are important in the proposed model.

Stress State Contents. Stress state contents refers to particular patterns of organismic experience characterized by positions on the following three parameters: (1) system overload–system underload (2) positive–negative, and (3) high arousal–low arousal. These three parameters represent basic functional dimensions of human experience which are relatively independent of one another and which capture fundamental poles of human experience. They have particular relevance for schizophrenic disorders because their representational properties may well shape schizophreniform adaptational patterns through processes of conditioning organismic and situational cues. For example, a stress state consisting of high overload, negative experience, and high arousal might, depending on its parameters of occurrence, condition a confused, delirious, agitated, and fearful profile of schizophrenic functioning. In contrast, patterns of underload, negative experience, and low arousal might condition a withdrawn, flat, apathetic, hallucinatory profile. Particular stress states

¹ Although the major determinants of the stress state are the interactional patterns between the stressors and supports, an important role is played by such moderator variables as age, gender, social class, education, occupation, health status, and so forth. It should also be noted that stressors, supports, and stress states exist at biological, psychological, and social levels of functioning.

can be differentiated along these parameters and eventually linked with distinct patterns of schizophrenic experience. If particular patterns are experienced over long periods of time, they can shape distinct epistemological orientations (i.e., distinct orientations of causality, time, and space). Implicit within any affective and cognitive state is a sense of causality, time, and space. Thus, if we are highly aroused, we experience the world according to a different causal pattern. We may see causality as a function of contiguity of events (e.g., superstitions) instead of "logical" relations. Similarly, our concept of time is altered so that events seem longer or shorter than they do under different arousal conditions.

The nervous system codes reality according to our experience. If we experience reality at particular levels of arousal, overload–underload, and positive–negative affect, with their distinct epistemological implications, then particular patterns of reality will become the normative experience. In a previous article, these points were considered in the context of individuals taking LSD over long periods of time. Under LSD, reality (i.e., causality, time, space) is altered. But the drug experience is no less real to the nervous system which codes the new reality experience. Thus, even when the drug is no longer being used, the drug reality experience may emerge as a competing reality to that of the "normal state" (Marsella and Price-Williams 1974).

Stress State Parameters. Stress state parameters refer to various descriptors that can be assigned to the stress state at either a specific

or general level of functioning. They enable investigators to profile the stress state experience. The specific parameters suggested are the same as those listed as stressor parameters (i.e., frequency, intensity, and shape).

Stressors, Stress States, and Schizophrenic Disorders

Many investigators have implicated stress in schizophrenic disorders. What is lacking, however, are conceptual frameworks for linking various stress parameters to specific aspects of schizophrenic functioning, and also empirical studies that demonstrate these linkages in human populations. Although stressor and stress state dimensions that are felt to merit greater attention in schizophrenia research are delineated in the present article, these dimensions by themselves cannot account for various aspects of schizophrenic disorders. A third component is needed: support systems.

Networks and Social Supports

Definitions. Most people live in a complex social environment composed of various combinations of family, friends, neighbors, acquaintances, and community social and service organizations. The theoretical, conceptual, and methodological approaches of social scientists to this environment are numerous and diverse. One formulation of the social arena is the social network. Adams (1967, p. 64) defines the social network as those persons with whom one maintains contact and has some form of social bonds.

More recently, Walker, MacBride, and Vachon (1977, p. 35) suggest

the network is the set of personal contacts through which the individual maintains his social identity and receives emotional support, material aid and services, information and new social contacts. . . [it] may include relatives, friends, neighbors. . . .

As the research on social networks develops, we can expect that the definitions will reflect the need for specificity in our conceptualizations, terminology, and operational constructs.

The social network approach has its roots in social anthropology and sociology. The concept of "social networks" was introduced by Barnes (1954) in his study of a Norwegian community, and Bott (1957) later used social networks in her study of conjugal role performance. For a review of the body of research that has since been carried out in this area, see Mitchell (1974).

Social Networks and Mental Health

The concept of social networks has recently begun to emerge in the literature related to mental health and mental disorder. It is a multidisciplinary interest with contributions from psychology, anthropology, sociology, and social psychiatry. The direction and interest of the research can be assigned to four general areas: Finlayson (1976), Henerson et al. (1978, 1979), Litwak and Szelenyi (1969), Tolsdorf (1976), Walker, MacBride, and Vachon (1977), and others have considered the social network as the location of resources and support. Horwitz

(1977, 1978), McKinlay (1973), and Salloway (1973) have investigated the relationship between social networks, help-seeking behavior, and utilization of services. Attneave (1976), Rueveni and Speck (1969), and Speck (1967) have used the social network in a therapeutic approach called "network therapy." Beels (1978), Hammer (1963), Hammer, Makiesky-Barrow, and Gutwirth (1978), and Henderson et al. (1978, 1979) have contributed to the theoretical and conceptual aspects of social networks and psychopathology.

There is a large body of literature that attempts to establish that stress and stressful life events are associated with the onset and incidence of psychiatric symptomatology. The fact that the overall strength of the relationship between stress and illness has tended to be small and unreliable suggests that other important variables may be involved. A number of studies have pointed to the role of social factors, including social supports and support systems, as mediators of stressors, thereby reducing the risk of physical illness or psychiatric impairment (e.g., Caplan 1974; Cassel 1974; Cobb 1976; Tolsdorf 1976; Dean and Lin 1977; Andrews et al. 1978). These proposed mediators are complex, multidimensional variables that have been variously defined:

information leading the subject to believe that he is cared for and loved, esteemed, and a member of a network of mutual obligations. [Cobb 1976, p. 300]

.....

any action or behavior that functions to assist the focal person in meeting his personal goals or in dealing with the de-

mands of any particular situation. [Tolsdorf 1976, p. 407]

.....

a complex that provides a buffer against adversity, a reservoir for varieties of help in times of stress, a source of feedback as to how others see us, and a sense of belonging and acceptance. [Caplan 1974, p. 4-6]

A more systematic formulation is needed for the fruitful investigation of the cogent dimensions of the social environment and the way in which they combine to create "social support." We define support as any object, event, or process that is capable of influencing or mediating a stressor or stress state. A social network approach provides the foundation for delineating and assessing the supportive capacity of a defined social environment.

One of the most extensive efforts to quantify and to assess the social network has been produced by Scott Henderson and his colleagues at the Social Psychiatry Unit of the Australian National University (e.g., Duncan-Jones 1978; Henderson et al. 1978).

Social Network Dimensions

The social network model is a systems approach for describing, quantifying, and analyzing the complexities of the social milieu. A wide range of dimensions, characteristics, and variables have been proposed to characterize the social network, but four dimensions, each consisting of several variables, appear most relevant for assessing the relationship between the social network, stressors, stress states, and disordered behavior like schizophrenia.

Structure. The structural dimension would include morphological variables such as size, density, frequency of interaction, and position within the network. This dimension provides a variety of measures that describe and quantify the structure of the network.

Interaction. The interactional dimension consists of variables that describe the relationships between the various network components. For example, reciprocity, symmetry, directionality, and content area are interactional variables. Gluckman (1959) has used the terms uniplex and multiplex to differentiate between single- and multistranded (content) linkages.

Qualitative. The qualitative dimension includes variables describing the affective components of the linkages. Some qualitative aspects could be inferred from the structural characteristics—intensity, for example, may be defined by "frequency of contact." Other qualitative variables need to be directly assessed. An individual's perception of the quality of a relationship (linkage) along various dimensions (such as friendly-hostile) is vital to the development of a holistic assessment of the network.

Functional. The functional dimension delineates those variables that identify and describe the linkages in which an individual serves a function for another individual. The social network can provide an array of instrumental and expressive functions that are socially and psychologically important. The functions of interest need to be specific and clearly defined. For

example, Tolsdorf (1976) suggested that one function of an interpersonal relationship is "feedback," which he defined as "the provision of evaluative statements regarding how the expectations or requirements of a special goal were being met or surpassed."

Henderson et al. (1977, 1978) suggested that a minimum level and quality of social interaction is necessary to maintain a reasonable degree of affective comfort and to operate effectively in the face of adversity; below this level, the risk increases for the emergence of a number of psychiatric disorders.

The assessment of the relationship of these four dimensions of the social network provides the information necessary to determine how functional the network is in providing social and psychological support in the presence of various stressors. For example, linkage with a particular array of structural, interactional, and qualitative characteristics (high frequency of interaction, symmetry, and positive affective quality) might provide a particular kind of support (instrumental support—for example, the loan of a car) in the presence of a particular stressor (malfunctioning car). This kind of analysis can begin to provide a normative context by which to evaluate a network. Research on normal individuals has shown some consistency in the size and structure of their networks (Cubitt 1973). Close examination of the differences in network dimensions of various specifically defined populations will provide useful information about the role of social factors within the behavior/symptomatology matrix (e.g., onset, course, and prognosis by frequency, intensity, and duration).

The social network model is an approach to the social environment and its supportive capacities. Complicating this approach is the fact that the various dimensions of the network are not static. Because the network is a dynamic, ongoing system, its relationship to stressors, stress-states, and behavior requires an interactional model. The network influences the definition of an event as a stressor; determines to some extent the types of stressors that are experienced; mediates the stress-state that is invoked; and is a factor in the behaviors exhibited. Likewise the network is influenced by the stressors, the stress-state, and the behavior.

Social Networks and Schizophrenic Disorders

Research in schizophrenia has addressed the social environment from a number of different perspectives. One focal area has been the evaluation of outcome effects of various treatments. In general, comparisons between drug and psychosocial treatments have not systematically investigated the dimensions of the social treatments. A few recent studies (Paul, Tobias, and Holly 1972; Carpenter, McGlashan, and Strauss 1975) suggest that the psychosocial treatment can have strong effects; but there is a need to be more specific in our descriptions and definitions of social variables in order to identify the necessary components of the treatments. The demonstrated effectiveness of pharmacological treatment in reducing symptomatology, as well as the widespread belief that the environment has little effect, has con-

tributed to the limited investigation of social variables. Studies comparing the differential effects of various milieus need more discrete definitions of the milieu variables. The intensive social treatments such as Soteria House have reported good outcomes, often without medication (e.g., Mosher, Menn, and Matthews 1975; Matthews et al. 1979). Again an assessment of the social variables would identify the cogent aspects of the treatment.

Network analysis may have some explanatory power in other areas of schizophrenia research. Socioeconomic status (Hollingshead and Redlich 1958; Dohrenwend and Dohrenwend 1969), premorbid factors, especially social isolation (Strauss and Carpenter 1972), and social disintegration (Leighton 1959) have been identified with an increased incidence of schizophrenia. Each one of these factors may involve some idiosyncratic combination of network dimensions.

There is only a limited amount of research directly assessing the social networks of schizophrenic patients. Hammer (1963) has reported a relationship between the schizophrenic patient's network, the speed of hospitalization, and the kinds of assistance the patient received. Pattison et al. (1975) compared normal, neurotic, and psychotic groups and found that the networks of the psychotic individuals were smaller and more interconnected than those of the two other groups (though the neurotic group showed the same tendency to a less extreme degree). Tolsdorf (1976) observed that schizophrenic patients had more kinship linkages, but fewer intimate relationships, than nonpsychotic medical

patients. Sokolovsky et al. (1978), in a study of the schizophrenic and nonpsychotic populations of a single room occupancy hotel, found that larger network size reduced the likelihood of an ex-patient's being rehospitalized; ex-patients with residual symptoms had smaller, higher density networks.

The kinds of network variables assessed in these studies were network size, interconnectedness, type of network members, symmetry, and number of content areas of a relationship. Although there were some discrepancies, there was a general tendency for the networks of schizophrenics to be smaller, less interconnected, asymmetrical, and uniplex (containing only one content area).

In brief, theory and research in schizophrenia have consistently suggested a prominent role for social factors in shaping and maintaining schizophrenic behavior and mediating the recurrence of symptomatology and rehospitalization.

Schizophrenia

Historical Considerations. There are few terms in our medical lexicon that elicit more conceptual confusion than "schizophrenia." As is well known, the term was originated by Bleuler in 1911 to resolve problems with the earlier terminology "dementia praecox" advanced by Morel and Kraepelin. But evidence is now mounting that our rather unconditional acceptance of the earlier notions about schizophrenia may have led us into errant channels of inquiry and practice. Clearly, the efforts of Kahlbaum, Kraepelin, and Bleuler occurred at a time in history when

medicine was enjoying tremendous progress in the identification of new diseases, many named for the individual who made the discovery.

The *zeitgeist* of the time had conditioned the idea that various diseases had distinct causes, symptom profiles, courses, and outcomes. It was natural, within such a context, for the early pioneers in psychiatry to assume that conceptions of psychological disorder would parallel those of medical disorders: distinct causes, ordered patterns of expression, identifiable courses and prognoses, and, of course, specific treatments. Such an assumption was unwarranted! Today our increased sophistication about the determinants of human behavior, normal and abnormal, requires that we redefine our conceptions of schizophrenia to conform with our growing awareness of the multivariate natures of the causes and patterns of mental disorders.

The early theorizing about the nature of schizophrenia may now be impeding modern conceptual advances. When all is said and done, we must acknowledge that schizophrenia is a "construct" — a term created by scientists to help explain or summarize certain types of behavior. It does not have a reality of its own. Rather, its meaning derives from our inclinations to use it in certain ways and not in others. Thus, when we encounter an individual who is behaving in strange ways (i.e., confused thinking, hallucinations, bizarre behavior), we are likely to state that the individual is "schizophrenic" or suffers from "schizophrenia."

This type of thinking forces us, mistakenly, to reify a construct. Our problems are amplified when

we forget that we are invoking our construct very carelessly to describe or summarize a multiplicity of behavior patterns that often resemble one another very little and most likely have numerous causal factors operating in countless combinations. Multiple causes interact to produce multiple patterns of disordered behavior. To this, we should also add that multiple factors operate once the disordered behavior patterns develop to shape further the expression, course, and eventual outcome of the pattern. In addition, we face the problem of "equifinality," in which different causes have the same end effect and similar causes may have different effects.

Dysfunctional Profiles: An Alternative Strategy

As is well known, diagnostic labels like paranoid schizophrenia, simple schizophrenia, and hebephrenic schizophrenia are of questionable utility clinically and scientifically. They are unreliable, and force us into stereotypic thinking. Increasingly, researchers are turning to other approaches that emphasize more quantifiable methods (e.g., process versus reactive distinctions, use of Lorr's Inpatient Multidimensional Psychiatric Scales, Eysenck's multidimensional classification schema, and functional analyses of behavior proposed by various behavior therapists). Clearly, if we are to make further progress in schizophrenia research, it is critical to arrive at some method for increasing the specificity of our observations. The use of broad labels with minimal attention to specific symptom parameters can only serve to hinder our understanding.

What is needed is a system for classifying behavior that permits a more systematic analysis of those behaviors we associate with psychopathology. We would like to suggest an alternative strategy which might prove useful for relating adaptive behaviors to the three components of the model: stressors, supports, and stress states (see figure 1).

An Alternative Classification Strategy. Instead of focusing on symptoms in general, it might be useful for researchers and theorists to profile behaviors that are associated with schizophrenic functioning along two dimensions: (1) *functional systems* and (2) *simple and complex response parameters*.² Although human behavior can be divided into many different categories, there are cogent reasons for grouping it according to various functional systems of behavior. These include the following: somatic, sensory, perceptual, motor, cognition, affective, and interpersonal and self. Each of these systems has a number of functions that it performs at varying degrees of involvement with the other systems:

- Somatic: reproduction, repair, rest, nourishment.
- Sensory: information, acquisition, and processing.
- Perceptual: information sorting, interpreting, judging.
- Motor: coordination, movement.

²Some of the ideas in this conceptualization were first called to the senior author's attention in 1965 during a graduate course in psychopathology conducted by Donald Ford and Hugh Urban at Penn State University.

- Affective: arousal, emotion.
- Cognitive: symbolic behavior (verbal, imagistic), language, memory.
- Interpersonal: sociability, appearance.
- Self: purpose, meaning, coherence.

Whether we are speaking of normal behavior or abnormal behavior, these are the systems involved. Abnormal behavior differs from normal behavior less in the kinds of responses of the different systems as in the attributes and the situations in which the responses occur.

Some of the more important response attributes for studying abnormal behaviors include the following:

1. Quantitative

- Response activation: present or absent
- Rate: low-high
- Duration: brief-long
- Latency: slow-fast

2. Qualitative

- Appropriate: appropriate or inappropriate?
- Situational appropriateness: is the response appropriate to the situation?
- Inconsistency: is the response inappropriate to the preceding responses?
- Interpenetration: does the response intrude in a sequence but belong to another sequence?
- Perseveration: does the response occur repeatedly?
- Interruption: does a response suddenly stop?

- Fragmentation: are responses random and inefficient?
- Incongruence: are responses split up?
- Conflict: are two or more response sequences incompatible?
- Antecedents: is a response inappropriately related to a stimulus which sets it off?

Within this context, researchers and clinicians are able to specify the "symptoms" in more detail, and a greater understanding of their properties results.

A Conceptual Model

The previous sections discussed the four major components of the model: stressors, social supports, stress states, and schizophrenia. Each of the first three components was discussed with regard to the various parameters assumed to be relevant to understanding, describing, and predicting the etiology, expression, course, and prognosis of various dysfunctional profiles associated with schizophreniform disorders.

The purpose of the previous sections was to suggest that schizophreniform disorders can be conceptualized as organismic adaptive efforts which reflect the complex interaction of various stressor, social support, and stress state parameters. This approach is closely related to newer theoretical and research strategies which emphasize interactional relationships between different variables and variable categories.

This article is a first step toward the development of an interactional model of schizophreniform disorders. It delineates some of the variables and variable categories which should be considered in

conceptualizing the problem. Table 1 provides a listing of these variables.

In the future, it will be necessary to develop quantifiable indices of these variables and to specify or to hypothesize relationships among them. Empirical studies will then comprise the final test of the model's utility.

One of the major problems confronting the interactional theories and research strategies is that of data analysis. Clearly, multivariate methods are required because of the many variables involved. In addition to factor analysis and regression analysis, researchers are currently exploring the possibilities of applying topological mathematical concepts to behavioral science topics under the rubric of "catastrophe theory" (Zeeman 1975).

Each of these methods has its own distinct advantages and disadvantages as well as applications. All, however, offer researchers opportunities to examine many variables in interaction, and obviously, multivariate methods more accurately approximate "true" life conditions. One of the most unfortunate aspects of much of our current research is that it often fails to examine variables within a multivariate context.

There are numerous possibilities for increasing our understanding of schizophreniform disorders by emphasizing interactional approaches. By themselves, stressors, stress states, and social supports cannot provide a sufficient answer to the puzzles of schizophreniform disorders. But together, they offer us the chance to raise new questions about an old problem.

Table 1. Variable categories for proposed model**Stressor parameters**

Stressor category (e.g., housing, employment, marriage)

Stressor content (e.g., loss, conflict, discrepancy striving)

Stressor descriptors

Frequency

Intensity

Duration

Shape

Complexity

Discriminability

Controllability

Familiarity

Predictability

Conflict

Stress state parameters

Stress state contents

System overload-underload

Positive-negative affect

System arousal level

Stress state parameters

See stressor descriptors above

Social supports/networks

Social structure (e.g., size, density, frequency, position)

Support interactions (e.g., reciprocity, symmetry, directionality, content)

Support qualitative indices (e.g., intensity, perceived support, affective ties)

Support functional indices (e.g., feedback)

Schizophreniform behavior patterns

Clinical dimensions

Expression

Disability profile

Course

Outcome

Functional system

Somatic

Sensory

Perceptual

Motor

Quantitative response parameters

Activation

Rate

Qualitative response parameters

Appropriateness

Situational appropriateness

Inconsistency

Interpenetration

Perseveration

Affective

Cognitive

Interpersonal

Self

Duration

Latency

Interruption

Fragmentation

Incongruence

Conflict

Antecedents

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