Risk Factors in Schizophrenia: The Stony Brook High-Risk Project

by Sheldon Weintraub

Abstract

The goals of the Stony Brook High-Risk Project are to identify precursor patterns, environmental stressors, and protective factors that are differentially predictive of psychopathology. In phase I we assessed 219 families and 544 children aged 7-15, including 31 families and 80 children with a schizophrenic parent, 70 families and 154 children with a unipolar depressed parent, 58 families and 134 children with a bipolar parent, and 60 normal control families with 176 children. A 3-year followup was conducted on 84 percent of the sample, and an additional followup is underway. Our data include measures of: (1) psychological functioning of the parents; (2) the environment, including family functioning, marital adjustment, and parenting practices; (3) child adjustment, including peer, or teacher, parent, and self-ratings; (4) early signs or precursors to the development of schizophrenia or affective disorder, including cognitive slippage, attentional deficits, hedonic capacity, depressogenic attributional styles, and subsyndromal affective patterns. Considerable deviance in family functioning, expressed in conflict, marital discord, and parenting skills, was characteristic of the families with an ill parent, and this discord was related to child adjustment. Children with a schizophrenic parent showed multiple and extensive cognitive, attentional, and social impairments, and at the 18+ followup, 22.8 percent of them compared with 9.6 percent of the normal controls were assigned a DSM-III diagnosis.

The goals of the Stony Brook High-Risk Project are to identify precursor patterns, environmental stressors, and protective factors that are differentially predictive of psychopathology. Children with a schizophrenic parent, a unipolar parent, a bipolar parent, and parents free of diagnosable psychopathology have been longitudinally studied, beginning in 1971. Approximately 50 percent of children with a schizophrenic parent will be maladjusted in adulthood, and their risk for schizophrenia is 10-16 times greater than that for the general population (Heston 1966; Rosenthal 1970; Gottesman and Shields 1972, 1982). There is also evidence that children with an affectively ill parent are at risk as well (Cytryn et al. 1982; Weintraub et al. 1985).

Although many investigators consider genetic factors to constitute the basis of this risk, in fact, it merely reflects an empirical or statistical finding. In addition to whatever genetic factors might be operative, children with a mentally ill parent are subject to a host of other influences, including birth complications, disruptions in the family due to parental hospitalization, and interaction with a disturbed parent. The concept of vulnerability or risk makes no assumptions about its cause, but only posits that it exists (Zubin and Spring 1977).

Our conceptual approach to the development of schizophrenia, and of psychopathology more generally, takes an idiographic-developmental perspective, which emphasizes the nature, sequencing, and duration of stressful and supportive events in the child's environment, and incorporates the interactive developmental model formulated by Strauss and
Carpenter (1981) and Strauss et al. (1985). Strauss et al. point out that although the diathesis-stress model is able to address the diverse research findings that substantiate the importance of environmental influences, its generalized conception of “stress” is grossly inadequate. Strauss et al. (1985), Garmezy (1983), Rutter (1980), and others recommend that environmental factors be expanded beyond negative stressors to include factors such as social supports, protective factors, and resilience. Strauss’s interactive developmental model attempts to provide a structure for considering both the complex interaction of individual skills and vulnerabilities with various environmental stresses and supports as these evolve over time.

An important component of the model is the principle of individual variation, which holds that there are many individual differences in strengths and stressors. Some children seem to be invulnerable to a host of stressors as long as their family life is stable and positive. Others seem to need all aspects of their life running well to ward off serious problems. Strauss et al. (1985) maintain that these individual variations have considerable intraindividual continuity and can be charted for the individual through multiple and extended contacts.

Characteristics of the Sample

Although the primary focus of our project is on schizophrenia, the inclusion of a nonschizophrenic psychiatric contrast group is essential to the meaningful interpretation of findings. A difference between children with a schizophrenic parent and a normal control group cannot be interpreted as of specific relevance to schizophrenia. Schizophrenia and affective disorder are excellent contrast groups because they appear to be two distinct clinical and genetic entities (Rosenthal 1970; Kendler et al. 1981) and are characterized by different patterns of social competence (Zigler and Phillips 1960). The inclusion of both unipolar and bipolar patient-parents reflects the current literature that emphasizes a distinction between unipolar and bipolar disorder (Depue and Monroe 1978). Children of both male and female psychiatric patients are studied to provide a more complete sample and to enable us to clarify the potential interactional effect of sex of ill parent with sex of child on the child’s adjustment.

Two types of normal controls were incorporated into the research design: classroom controls and family controls. For all school comparisons, each target child is compared with two classmates. One of these is a same-sex but otherwise randomly drawn child from the same classroom; the other is matched to the target child on sex, age, race, social class, and IQ. Matching was done to control for potential confounds or “nuisance variables.” However, it involves the tacit assumption that the matching variables are merely peripheral correlates and unrelated to the development of psychopathology (Meehl 1971), which may not be warranted with variables such as social class and IQ. In addition, matching on one variable often produces systematic unmatching on another (Meehl 1971). Thus, it was important to include random controls. These matched and random control children then provided a source for obtaining our 60 control families. The cooperation rate was 76 percent. The same assessment battery administered to the ill parent and his/her spouse on their adjustment and the home environment was also administered to the control parents.

Diagnostic Criteria for Parents. The reliability and validity of psychiatric diagnosis have been the bétes noires of many a research project and are of paramount concern in a longitudinal study. The great effort and expense involved in establishing a high-risk sample and collecting data would be worthless in the absence of careful, adequate attention to the major independent variable of psychiatric diagnosis of the patient-parent.

Hence we interviewed every patient within the first 10 days of hospital admission and conducted detailed diagnostic and behavioral evaluations of current and premorbid social and psychological functioning. Also obtained were hospital case-record data, and the spouse’s ratings of the patient’s psychiatric and social functioning. Information was collected with the Current and Past Psychopathology Scales (CAPPS) (Spitzer and Endicott 1968; Endicott and Spitzer 1972), Mini-Mult version of the Minnesota Multiphasic Personality Inventory (MMPI) (Kincannon 1968), Global Assessment Scale (GAS) (Endicott et al. 1976), and Mate Adjustment Form (MAF) (Weintraub and Neale 1978).

Diagnoses were assigned according to DSM-III criteria (American Psychiatric Association 1980). According to Cohen’s kappa statistic, the reliability of each of our diagnostic categories was >.90, a figure probably inflated by the prescreening of our sample and the use of only three diagnostic categories. Only 31 of the 92 cases originally diagnosed as schizophrenic by DSM-II (American Psychiatric Association 1968) qualified for that DSM-III diagnosis. This is particularly striking.
because our original diagnosis of schizophrenia was applied to < 80 percent of the hospital-diagnosed schizophrenics, but is quite consistent with the findings of other investigators making similar comparisons (Taylor et al. 1974; Strauss and Gift 1977).

There were no significant demographic differences among groups; the average family in our sample is white, lower-middle class, and was intact at the outset of our study. The spouse's MAF reports of the patient's problems were quite consistent with their diagnoses.

**DSM-III vs. DSM-II.** We have conducted several analyses of the effects of rediagnosis on a number of variables (Winters et al. 1981). DSM-III schizophrenic patients were rated significantly higher on number and severity of schizophrenic symptoms, and significantly lower on depressed mood and other depressive features than were DSM-II schizophrenics. We have also compared the offspring of DSM-III schizophrenics with the offspring of DSM-II schizophrenics who did not meet DSM-III criteria, and generally found the children with a DSM-III schizophrenic parent to be more deviant.

**Sample Attrition and Bias.** Successful sample maintenance is crucial to any longitudinal high-risk research. In our project, attrition (moves and refusals) from phase I to phase II was 9.7 percent for the schizophrenic families, 21 percent for the affectively ill families, and 10 percent for the normal control families. We collected data on families who refused participation or who dropped out to estimate the nature and extent of sampling bias. There were no differences between those patients who refused and those who consented on demographic characteristics such as age, religion, education, and occupation, but the refusers tended to be more severely disturbed and more paranoid than the consenters. The second point at which we lost cooperation was when we approached the spouse for his/her participation and that of the family. Again, we found no significant differences in demographic characteristics; moreover, no differences appeared in severity, paranoid symptoms, total time in psychiatric hospital, and number of previous hospitalizations. Whatever bias might exist here would probably be found in spouse factors and family dynamics.

Although the nature and extent of the entire family's participation in the project were fully detailed before consent was obtained, we permitted families to remain in the project even though their participation might not be complete. For instance, a patient's spouse might consent to his/her family's participation but personally refuse to be interviewed. Another family might participate fully, except that we were prohibited from obtaining peer and teacher evaluations. Partial participation is quite vexing in our

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<th>Table 1. Child sample by sex and parental DSM-III diagnosis: Phase I</th>
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<td>Parental Diagnosis</td>
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<tr>
<td>Children</td>
</tr>
<tr>
<td>Schizophrenic</td>
</tr>
<tr>
<td>Boys</td>
</tr>
<tr>
<td>Girls</td>
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<tr>
<td>Total</td>
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<th>Table 2. Number of families at phase I</th>
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<tr>
<td>DSM-III diagnostic status</td>
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<tr>
<td>Sex of patient</td>
</tr>
<tr>
<td>Schizophrenic</td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>Total</td>
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various analyses because they are characterized by varying $n$'s. However, it also puts us in a unique position to analyze potential confounds because of dropouts and, in our opinion, provides a more representative sample. We believe that if we selected only those families willing to participate fully, we would be left with a sample that is highly unrepresentative of families with a psychiatric patient-parent in general.

**Spouse and Family Characteristics.** Efforts to assess the impact on a child of a disordered parent must also consider the family context in which the parent and child are embedded. Characteristics of parental child-rearing practices and levels of conflict and shared intimacy among family members may interact to heighten or mitigate the negative influence of a disordered parent in the household. When one parent develops a psychosis, the quality of the spouse's adjustment becomes particularly critical (Rutter 1966; Mednick 1973). Not only are the nondiagnosed spouses in a unique position to buffer the distress experienced by children through encouraging dialogue, maintaining equilibrium and stability within the family, and providing a supportive environment for the children, but they are also in an equally pivotal position to accentuate their children's distress by exhibiting problems of their own.

The psychological adjustment of the spouse, the functioning of the family, marital adjustment, and parental child-rearing characteristics were assessed during home visit interviews with the patient and spouse, and by reports from the children. The same instruments and procedures used with the psychiatric parent were administered to the spouse: (1) CAPPS, (2) Minnesota Mult MMPI, and (3) MAF. A semi-structured interview, the Family Evaluation Form (FEF) (Weintraub and Neale 1978), was administered separately to the patient and spouse to assess family solidarity, cohesion, conflict, finances, household facilities, parenting behavior, marital adjustment, and relationships among the children. The Marital Adjustment Test (MAT) (Locke and Wallace 1959) was also administered separately to both parents. The children were given the Child's Report of Parental Behavior Inventory (CRPBI) (Schaefer 1965) to obtain their perceptions of their parents' child-rearing behaviors on the following scales: acceptance, child-centeredness, control through guilt, instilling persistent anxiety, lax discipline, and nonenforcement of rules. The offspring also completed the Environmental Q-Sort (Block 1961) and a revision of the M-B History Scale (Briggs et al. 1972) to provide an evaluation of the parents and family environment from their own phenomenological perspective.

**Procedures for Index Offspring Assessment**

Three strategies guided the selection of variables for our project. Our first strategy was to develop a comprehensive picture of the environment for each child in the project. This reflects our particular emphasis on the factors that might potentiate the diathesis. We assessed in detail the general family environment, parenting characteristics, marital adjustment, sibling relationships, the school environment, and life events. We recoded data from the school and home to provide a series of objective ratings of environmental "noxiousness," support systems, and protective factors.

Our second strategy was to search for precursor patterns and early signs of schizophrenia and affective disorder. We selected or created age-appropriate versions of the following variables shown to be important from clinical, follow-back, and experimental studies on adult patients: cognitive slippage, attentional skills, hedonic capacity, depressogenic attributional styles, and subsyndromal characteristics.

Because there is so much heterogeneity in schizophrenia, in symptoms, course, and outcome, there is little justification for a search for a single antecedent; indeed, there may be no common manifestation of the predisposition to the disorder (Rieder 1979) but, rather, multiple developmental pathways. Thus, our third strategy was to develop a detailed picture of the characteristics of children who are at risk for psychopathology. The central focus of this descriptive approach is the assessment of competence. Competence measures are among the best predictors of adult behavior (Kohlberg et al. 1972), as well as course and outcome for schizophrenic and affectively ill patients (Klorman et al. 1977). Indeed, the reexamination by Gunderson et al. (1983) of the case records for the Danish Extended Family Study (Kety et al. 1975) suggests that social competence indices may tap into schizotypy.

The schools were the major setting for the assessment of competence. The school environment is the most significant social and psychological arena a child encounters outside of the family, representative as it is of the competitive, work, and social demands with which the child will later have to cope. We collected data from four sources in the schools: peers, self, teachers, and school records, using the Pupil Evaluation Inventory (Pekarik et al. 1973).
to obtain peer and self-evaluations, and the Devereux Behavior Rating Scales (Spivack and Swift 1967) to obtain teacher ratings. Both mothers and fathers completed the Devereux Child Behavior Rating Scale (Spivack and Spotts 1966) to describe the behavioral characteristics of their children.

All of the patient, spouse, family, laboratory, and school assessments were readministered within 1 month of the ill parent’s project-entry episode, and then repeated 3 years later. A third administration of all measures was conducted 6 years later for those families whose children were still of school age. A special battery of tests is now being administered to those offspring over age 18. The battery assesses (1) current adjustment, including DSM-III diagnostic status and social competence; (2) past adjustment, including health, social, family, and psychiatric characteristics; (3) nature and extent of drug use; (4) subsyndromal characteristics of disorder; and (5) general personality functioning.

Current Psychiatric Status of Index Offspring

For the school-aged children, evidence of clinical maladjustment was found in a significantly greater number of target children than normal controls (see table 3). For each child we scanned all the information obtained from all our sources and noted the presence of any maladjustment or clinical involvement. More than 35 percent of the children with a schizophrenic parent had some significant clinical involvement, compared with 9.8 percent of the normal controls. There was no unique clinical involvement associated with a particular parental diagnosis, although the only children who had both internalizing problems of social withdrawal and externalizing problems of “acting out” were those with a schizophrenic parent. Follow-back studies of male preschizophrenics (e.g., Watt 1978) and high-risk studies of offspring of schizophrenics (Weintraub et al. 1975, 1978) suggest that aggression combined with social withdrawal may be associated with risk for schizophrenia. We should emphasize, however, that only five children showed significant problems in both the internalizing and externalizing areas, and these “clinical involvements” do not constitute clinical diagnosis.

Offspring exhibiting a DSM-III diagnostic disorder at the time of their 18+ assessment, according to the Schedule for Affective Disorders and Schizophrenia (SADS) (Spitzer and Endicott 1979) or the Structured Clinical Interview for DSM-III (Spitzer and Williams 1984), were 22.8 percent with a schizophrenic parent, 15.2 percent with a unipolar parent, 20 percent with a bipolar parent, and 9.6 percent with normal parents. The most common diagnoses for offspring with a schizophrenic parent were borderline or personality disorders; affective disorders were most common in the offspring of both unipolar and bipolar parents; adjustment and anxiety disorders, in the offspring of controls; and substance-use disorders, in the offspring of “others” (see table 4). More common than psychiatric diagnoses were subsyndromal impairments in social and role functioning.

Risk Indicators

Attentional and Information-Processing Deficits. The findings from parametric and deviant-responder analyses of our laboratory data are both consistent and striking. Children with a schizophrenic parent showed deficits in the ability to maintain attention and ignore irrelevant input; they also evidenced patterns of cognitive slippage, differing from children with normal parents across our entire battery of attentional and cognitive measures (Neale et al. 1984). For example, the tape-recorded samples of speech of the children with a schizophrenic parent were characterized by considerable structural deviance (Harvey et al. 1982).

Table 3. Significant clinical involvement in children ages 7–15

<table>
<thead>
<tr>
<th>Risk Indicators</th>
<th>Schizophrenic</th>
<th>Unipolar</th>
<th>Bipolar</th>
<th>Control</th>
</tr>
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<tbody>
<tr>
<td>Residential treatment</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Special school</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Specific learning</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Severe &quot;acting-out&quot;</td>
<td>6</td>
<td>17</td>
<td>18</td>
<td>5</td>
</tr>
<tr>
<td>Severe social withdrawal</td>
<td>6</td>
<td>12</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Externalizing &amp;</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Internalizing</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>School dropout</td>
<td>28</td>
<td>40</td>
<td>33</td>
<td>15</td>
</tr>
</tbody>
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(35.4%) (29.4%) (25.4%) (9.9%)
Table 4. Distribution of DSM-III diagnoses at age 18+ evaluation

<table>
<thead>
<tr>
<th>DSM-III diagnoses of offspring</th>
<th>Parental diagnostic status</th>
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<tbody>
<tr>
<td></td>
<td>Schizophrenic</td>
</tr>
<tr>
<td>Schizophrenic disorders</td>
<td>2 (11.8%)</td>
</tr>
<tr>
<td>Affective disorders</td>
<td>4 (23.5%)</td>
</tr>
<tr>
<td>Borderline or personality disorders</td>
<td>6 (35.3%)</td>
</tr>
<tr>
<td>Adjustment or anxiety disorders</td>
<td>0</td>
</tr>
<tr>
<td>Substance-use disorders</td>
<td>5 (29.4%)</td>
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Children with a schizophrenic parent showed low verbal productivity, inadequate patterns of cohesion between ideas, and unclear and ambiguous references to previously mentioned ideas. A listener might well have difficulty discerning what many children with a schizophrenic parent are talking about. Although this pattern of speech is quite similar to that found by Rochester and Martin (1979) in adult schizophrenic patients, it does not meet clinical criteria for thought disorder; it is more akin to Meehl's (1962) cognitive slippage.

Social Competence and Behavioral Deviance. Social functioning of the school-aged children was assessed from the perspectives of the child's mother, father, teacher, and peers, using between-group and deviant-responder analyses. Children with a schizophrenic parent were rated by their parents as prone to emotional upset and distractible. Our school data strikingly indicate that such children show lowered competence along several dimensions (Weintraub and Neale 1984a). Teachers rated them as more deviant than their classmates as presenting a major behavioral disturbance (Spivack et al. 1972). Their classmate peers also perceive them to be different, describing them as abrasive, withdrawn, and low in social competence. Children with an affectively ill parent also showed patterns of significant deviance. These results are consistent with those of Janes et al. (1983). Only the peers were able to differentiate among the target children, rating only the children with a schizophrenic parent as deviant on the withdrawal factor of the Pupil Evaluation Inventory.

Breadth and Stability of Findings. We are struck by the breadth of deviance exhibited by the children with a schizophrenic parent, but it is the rare child who shows deviance in all areas. We conducted hierarchical cluster analyses and identified several subsets of risk children. One cluster reflects acting-out problems; another shows acting out and withdrawal; and yet another shows attentional and cognitive deficits. We hope to determine whether these various clusters have distinctive, clinically separate outcomes or reflect multiple pathways to a common outcome.

We found considerable stability from phase I to phase II in the attentional, cognitive, and social impairments in the high-risk group; nevertheless, it is also the case that some children get worse over time, and some get better.

Our approach to high-risk research is not one of selecting and assessing a sample of high-risk children and then waiting years for some endogenously determined evolution with an invariable course to a particular outcome. Change is the hallmark of childhood, and we are as interested in the changes and heterogeneity within high-risk groups as we are in stability. Thus, we turned to our family data in an attempt to account for diversity among children at risk, and for the changes that occur in children over their childhood and adolescent years.

Family Functioning. Differences between high-risk and normal control children are not limited to social and behavioral characteristics or to attentional and cognitive functioning. There are also differences in their family characteristics. Analyses of Marital Adjustment Test scores revealed greater marital discord in marriages with a schizophrenic than in the marriages of the normal controls (Weintraub and Neale 1984b). There were no significant differences in marital discord between the schizophrenic and affectively ill groups.

Analyses of family evaluation interviews with the patient and well spouse revealed significant dif-
ferences between families with a schizophrenic parent and normal control families in ratings of family solidarity, family conflict, children's relations, the marriage, household facilities, financial problems, worker role, and housekeeper role (Weintraub and Neale 1984b). Again, there were no significant differences in family functioning among the patient groups, but within-target group analyses revealed that illness-related dimensions such as severity, chronicity, and premorbid adjustment were independently related to family functioning (Richters and Weintraub 1986). Classification of patients on the basis of their predominant symptom profiles also revealed significant differences in family functioning. Spouses of patients with negative symptoms and impulse-control deficits reported significantly lower levels of marital satisfaction than spouses of patients with positive symptoms (Hooley et al. 1987).

On the Environmental Q-Sort (Block 1961), adolescents with a schizophrenic parent, compared to the normal controls, reported that the atmosphere in their family was upright, heavy, and cheerless; the feeling level was cold and restricted; and conflict and tension were high. Togetherness was not emphasized, and the family did few things as a group. These adolescents reported that their families had experienced a lot of bad luck and were highly unstable, disorganized, and unpredictable. They said their parents did not share similar values and points of view, and were uninterested, rejecting, punitive, and restrictive (particularly about dating).

In addition to our standardized measures, clinical and anecdotal findings highlight the nature of family disruption experienced by high-risk children. Economic instability was common; some patients lost their jobs, and others were forced to take less demanding and less remunerative positions as a consequence of their psychopathology or hospitalization. Well spouses sometimes refused promotions in order to increase their involvement in the family. There was often a loss in parental respect and authority; confidence in parental dependability was shaken; and perception of a parent as an effective role model and protector altered. The normal household routine was disrupted, and disorganization within the family often occurred.

Many families had a minimal social life and considerable friction with friends and relatives because of the patient's unusual social behaviors, paranoia, or social withdrawal. Even when the patient was functioning adequately at followup, the social networks destroyed during the acute stage of the patient's psychotic episode were not always salvaged. In a great many families, the ill parent's social inappropriateness and depression, as well as the stigma associated with psychiatric illness, directly affected the children's social life: they refused to bring their friends home.

Family functioning is related not only to parental disorder, but to child functioning as well. Although the correlations between family functioning and attentional and cognitive variables are small, there is a sizable relationship with child adjustment and other intermediate outcomes. Children who are doing poorly tend to come from families with greater strife, discord, and disorganization. When we look at these discordant families, however, we typically find variability among the children: some are functioning poorly, but others are functioning well (Weintraub 1984). For these families, home and family characteristics alone cannot explain children's eventual outcome. At the very least, family variables have to be used in conjunction with other, child-specific variables such as age, sex, individual experiences, and dispositional characteristics if we are to explain why children from the same family have widely discrepant outcomes.

Specificity. The overall pattern of our results, across tasks and across time, indicates that children with a schizophrenic parent as well as children with an affectively ill parent are indeed vulnerable, showing multiple and extensive cognitive and social impairments. Although there were several instances of significant differentiation among target groups (particularly between children with a schizophrenic parent and children with a bipolar parent, and between children with a unipolar parent and children with a bipolar parent), there was also considerable overlap among offspring whose parents manifested these different psychiatric disorders. This is despite the evidence that schizophrenia and affective disorder are two very distinct disorders (Kendler et al. 1981), and that unipolar and bipolar patients show many differences (Depue and Monroe 1978).

We are puzzled and intrigued by this overlap and have speculated about its causes. One possibility is that the high-risk children are merely responding in some temporary, reactive way to their parent's illness and hospitalization. Data from our own studies document the ways in which a parent's problems, irrespective of diagnosis, can shake the equilibrium and stability of the entire family. A stable emotional climate, so important to a child's sense of security and conducive to growth
and maturity, is often unavailable to the high-risk child. But given that our pattern of findings was maintained at the subsequent followup, it is unlikely that transient reactivity can account for our results.

A second possibility is that the parental diagnoses were not valid in differentiating distinctive clinical entities. However, our data on the reliability and validity of our diagnostic assignments (Winters et al. 1981) provide considerable support that we did identify groups with distinctive clinical characteristics.

A third possibility is that the variables measured on the offspring are not, in fact, specific to schizophrenia. Along with other high-risk researchers, we selected variables that are among the most reliable and useful in detecting deficits in adult schizophrenic patients: however, these measures are derived from studies that typically only compared schizophrenics to normal controls. Indeed, an inspection of recent research that has included well-defined contrast groups (e.g., unipolar depressives, bipolars) has revealed that schizophrenics do not typically display unique deficits. Bipolar patients have been found to perform similarly to schizophrenics on perceptual span of apprehension (Strauss 1984), overinclusive thinking (Andreasen and Powers 1974), distractibility (Oltmanns et al. 1978), and Bannister’s grid test of thought disorder (Breaey and Goodell 1972); unipolars have also showed deficits equivalent to schizophrenics in studies of ability to filter (Helmley and Zawada 1976), memory (Sterberg and Jarvik 1976), and visual search (Korboot and Yates 1973).

Our data suggest that the search for unique schizophrenic deficits may be more fruitful if investigators use measures that go beyond a global assessment of overall performance. The results of our analysis of serial positions in a digit span measure of distractibility (Harvey et al. 1981), which parallel Oltmann’s (1978) findings with adult schizophrenics, suggest that the marker of vulnerability may not be general distractibility but a more subtle susceptibility of controlled information processing to interference effects.

Despite the similarities in behavioral patterns observed in the high-risk groups, there might be important differences in the underlying mechanisms that result in these behavioral patterns. For example, using path analysis, we evaluated two different mechanisms or pathways that might account for the deviant school behaviors observed in our sample (Emery et al. 1982). One considered the possible influence on child behavior of parental diagnosis, perhaps reflecting a genetic diathesis, and the second evaluated the possible mediating influence of marital discord. For the children with a schizophrenic parent, parental diagnosis had a direct effect on classroom behavior, but marital discord did not. Among the children with an affectively ill parent, the pattern was reversed; marital discord, not parental diagnosis, was the crucial variable. This finding was replicated with our phase II data as well.

We believe that our findings of extensive vulnerability and deviance in children with a schizophrenic parent and children with an affectively ill parent indicate that both groups of children are at risk and vulnerable to later psychopathology. Childhood vulnerability may be unrelated to a parent’s specific psychiatric diagnosis, to some considerable extent. Our DSM-III diagnoses of schizophrenia, unipolar depression, and bipolar disorder by themselves convey only limited information about important characteristics of a patient’s disorder, such as duration and severity of episodes and inter-episodic adjustment. From an environmental perspective, however, these dimensions of parental psychopathology hold considerable potential for assessing the levels of stress to which their offspring are exposed.

We recently examined (Richards and Weintraub 1986; Richters, in press) the heuristic value in distinguishing between chronic and episodic patient-related stress in evaluating the adjustment levels of high-risk offspring. Patients show considerable variation in the nature and severity of their symptoms during episodes, creating different levels of family disruption and discord before and in the wake of psychiatric hospitalization. They differ also in the chronicity of their illnesses, as assessed by the extent to which their trajectories are characterized by improvement, deterioration, and/or turbulence over time. For some, an illness may result in a single hospitalization of short duration with more or less full recovery. For others, there may be extended periods of normal or near-normal functioning, with perhaps two or three hospitalizations during a lifetime. Still others may suffer frequent and lengthy hospitalizations, and show poor levels of inter-episodic adjustment. We examined whether patients’ duration and severity of episodes, or their baseline levels of functioning between episodes of hospitalization—or both—are associated with maladjustment in their offspring, as measured during childhood and then again at young adulthood. Our analyses indicate that chronic stressors associated with parental psychopathology have a consistent and enduring influence (over
a span averaging 11 years) on the adjustment levels of their offspring. Episodic stressors associated with patient’s hospitalization histories, however, are only related to childhood adjustment measures of their offspring, and this influence is no longer apparent by the time their offspring reach young-adulthood. Although both chronic and episodic patient stress appear to be significantly and independently related to the quality of family life in the childhoods of the offspring, the influence of episodic stress appears to be more transient. Since even the most disturbed patient-parents in our project spend the majority of their time outside the hospital living at home, it should not surprise us to learn that their levels of functioning between episodes exact a more consistent and enduring toll on their offspring than periodic episodes of hospitalization. On the other hand, patient-parents with lower levels of baseline functioning, more chronic courses of illness, and earlier onset are likely to have a stronger genetic component to their psychopathologies, and thus their offspring are at greater genetic risk.

Possible Protective Factors

An interest in children who seem resilient in the face of stressful environments, and on factors that might buffer or protect these children has been sparked by the writings of Anthony, Bleuler, Garmezy, Rutter, and others. Several studies, including our own, have uncovered personal and environmental factors associated with reduced rates of maladjustment and adaptive functioning among high-risk offspring, but we still know little about why such factors are associated with reduced rates of risk. What is it that these offspring are being protected from?

There is an undeniable genetic component of schizophrenia, but there is no basis for assuming that all or even most offspring of schizophrenics are genetically vulnerable. We also know that there is no empirical basis for the assumption that all or even most high-risk offspring are exposed to particularly deviant, noxious environments. Factors associated with reduced rates of maladjustment may not be “protective” at all; instead, they may represent the absence of factors that lead to vulnerability. The difference between these two interpretations has important implications for the types of questions researchers do and do not ask of their data. Whether the risk-reducing factors that we and our colleagues have documented are in fact “protective” in some meaningful sense has yet to be clarified.

Recommendations

Now that offspring in several of the high-risk projects are entering early adulthood and their adjustment and psychiatric outcomes are being assessed, crucial issues related to the specificity of findings to schizophrenic development can be addressed. While we and others have had a great deal of success in relating parental diagnosis to vulnerability measures, social competence, and intermediate adjustment outcomes, it is essential to distinguish ultimately between offspring who have fallen ill and those who have not.

For logistic and scientific reasons, completion of the ongoing risk projects is the most important component of any strategy for future research. The samples assembled and the followup data collected are an invaluable resource that could well be unattainable in the future economic, political, and social climate.

References


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**Videotapes on Schizophrenia Available**

The Video Center of the George Warren Brown School of Social Work, in cooperation with several community and mental health organizations, has produced four videotapes on the following topics relating to survival issues for chronically mentally ill persons and their families in the community.

**Coping With a Chronically Mentally Ill Relative in the Community**—The two videotapes on this topic were produced in cooperation with the Alliance for the Mentally Ill, St. Louis Chapter. Each videotape presents the experiences of a family which has had some success surviving the multiple problems arising from caring for a mentally ill relative in the community. The videotapes are intended for an audience of parents and relatives of chronically mentally ill persons who could benefit from a vicarious sharing of experiences with the families on the videotapes.

**Psychosocial Rehabilitation: Two Agencies Based on the Fountain House Model**—These two videotapes were produced in cooperation with the Missouri Department of Mental Health, Independence Center, and Places for People, St. Louis, MO. Each videotape presents a psychosocial rehabilitation agency from the point of view of its members. The tapes are intended for professional audiences as well as for families and mentally ill persons who could benefit from knowing what it's like to experience psychosocial rehabilitation "from the inside."

For more information about the rental or purchase of these videotapes, please contact: Dr. David Katz, Video Center, Box 1196, Washington University, St. Louis, MO 63130.