The Effect of Neighborhood Environments on Schizophrenic Relapse: A Sociocultural Perspective

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Statement of the Research Problem

In recent years the focus of research in severe mental illness has expanded beyond attempts to determine its etiology. Currently, the objective of a sizeable body of study is improvement of illness outcome and individual quality of life, including extended community tenure for persons with severe mental disorders. Implicit in this research agenda is prevention, or at least delay, of relapse for stabilized individuals living in the community. This approach is particularly evident within the schizophrenic disorders, for a hallmark of the schizophrenias is their episodic nature. Despite periods of remission, schizophrenia and schizoaffective disorder have consistently comprised the bulk of institutionalized severely mentally ill persons over the years, outnumbering all other major mental illnesses in hospitalization rates (Lefley, 1996).

To increase our understanding of factors which may undermine stable community functioning, this study assessed residential location and time to relapse for persons with schizophrenic disorders living in the community subsequent to hospital discharge. Primary goal of this work was to investigate whether stressful conditions inherent in specific neighborhoods might increase the likelihood of relapse over and above individual risk factors and whether they may in fact promote early relapse. A further objective was to broaden the perception of environmental factors beyond the family unit, which has been studied extensively.

Research Background Questions/Hypotheses

To accomplish these goals, multilevel data were employed. Individual and macrolevel variables were linked, focusing primarily on the latter. Social disorganization theory was utilized as the overall sociological base, while diathesis-stressor theory formed the applied theoretical base. The tenets of social disorganization theory hold that low socioeconomic status (SES), residential mobility, lack of family cohesion, and a heterogeneous ethnic/racial population promote community turmoil and threaten the social order (Shaw & McKay, 1969). Diathesis-stressor theory, stemming from the disciplines of medicine and psychology, contends that the range of normal functioning in a biologically susceptible or a vulnerable individual (i.e., diathesis) has a threshold beyond which decompensation and eventual relapse into the active phase of the illness occurs (Nuechterlein & Dawson, 1984; Zubin & Spring, 1977). Maintaining one's functioning within the normal range is precarious in predisposed individuals, as their tolerance for conditions (i.e., stressors) which disrupt this balance is low. Stress is seen as the trigger
which stimulates the individual organism to exceed its threshold and produce an episode of illness.

In mental health research a variety of stressors have been examined for their potential to trigger schizophrenic relapse. To date, however, the construct of social disorder has not been considered in this manner. Grounding the research in social disorganization theory and applying diathesis-stressor principles to the analysis, this study asks the question: Can the neighborhood environment in which a vulnerable person lives produce sufficient stress to breach the homeostatic threshold and increase the risk of relapse in a previously-stabilized individual with a schizophrenic disorder?

Methodology

To address this question, a longitudinal, retrospective design using secondary data (administrative records; government and other public documents) was implemented. A random sample of 325 persons with schizophrenia and schizoaffective disorder, discharged during fiscal year 1995, was drawn from a large, state psychiatric hospital in Cleveland, Ohio. Individual data were gathered from multiple community sources for one year postdischarge for each person in the sample. Relapse rates are particularly high during the first year, and considerable clinical and research effort has focused on that time frame. Macrolevel data were obtained from numerous public databases over several years (1990-96); subsequently, a three-year average most proximal to the study period was computed for each neighborhood. All macrolevel data were geocoded into census tracts, which served as proxies for neighborhoods. Factor scores for each of the three neighborhood indices were calculated for all tracts in the study (n = 468).

Two sets of explanatory variables were used: environmental stressors (neighborhood variables) and personal vulnerability factors (individual variables). Neighborhoods served as proxies for stress. A Neighborhood Stress Model was constructed to measure the impact of neighborhoods on individual relapse risk. By means of principal components factor analysis, 22 neighborhood variables drawn from significant predictors in the literature were condensed into three macrolevel indices: Poverty/SES, Instability, and Criminal Behaviors. These factors when taken together explained 81.18 percent of variance in the model.

Five individual variables represented the classic sociodemographic characteristics: age, gender, race, marital status, and education. In addition, two clinical dimensions chronicity and comorbidity were included, as both were significant predictors of relapse in other studies. Chronicity was measured by number of previous state hospitalizations, while comorbidity (co-existing substance abuse and mental illness) was established by medical diagnoses in state hospital records, case notations in community service records, and/or substance-related arrests by the criminal justice system. Reinstitutionalization, which served as a proxy for relapse, was the sole dependent variable. This measure included not only return to the state hospital but also inpatient care in private hospitals and community mental health center crisis beds, as well as incarceration in correctional
facilities currently regarded by many as substitutes for hospitals (Belcher, 1988; Solomon & Draine, 1995; Teplin, 1990). Only the first relapse during the study period was used for each individual.

**Analysis** Bivariate analysis was performed with Kaplan-Meier techniques, which incorporate the time element (i.e., time to relapse) into the analytic process but are not able to handle multiple variables simultaneously. Multivariate analysis was conducted with the Cox proportional hazards regression model, which permits time-sensitive estimation of the impact of multiple variables on the dependent variable. This method of event history analysis was selected due to varying lengths of time between individual relapses, as well as the complete lack of relapse for some persons, resulting in right-censored data. The Cox model combines censored and uncensored data to generate risk estimates that are unbiased asymptotically, producing minimal overall bias and no data loss, as would occur with multiple or logistic regression (Allison, 1984). In conducting the analysis, aggregate-level factors were added to the model last, after individual variables had captured their share of explanatory power.

**Summary of Results**

Two-thirds (66.5%) of individuals in the sample were reinstitutionalized within one year: 60% of this group relapsed within the first three months and 82% within six months postdischarge. First month after discharge was the modal month for relapse. Community tenure ranged from two to 363 days for those who failed during the study (n = 216). Median length of community stay was 66 days for persons who relapsed, compared with an estimated probability of 152 days for all persons in the sample. These results are compatible with outcomes from other studies.

**Bivariate findings** (all statistically significant): Low chronicity (4 or < state hospital admissions) is highly significant in increased survival and extended community tenure (p = .0000). Among those with low chronicity, first admissions (no state hospital history) have the most favorable outcomes. For persons with low chronicity, chances of survival in the community are increased significantly if they are also over 40 years of age, or female, or White, or have at least a high school education, or are not comorbid. With the exception of education, most persons in this sample did not meet these conditions. Further, comorbidity decreases length of community tenure and appears to be particularly detrimental for African-Americans and persons under age 40. Length of community stay for comorbid persons is decreased even further when they live in neighborhoods which are unstable, or high in poverty/SES, or high in criminal behavior.

**Multivariate findings** (all statistically significant): With regard to individual risk factors, the risk of relapse for comorbid persons is 1.47 times greater than for noncomorbid persons. Risk of relapse for persons with moderate levels of chronicity is 1.86 times greater than for persons with low chronicity; that risk increases to 2.62 for highly chronic individuals. None of the sociodemographic variables (age, sex, race, marital status, education) were significant in the Cox model.
At the aggregate or neighborhood level, there is a 19.6% greater and earlier risk of relapse for every unit of increase (SD) on the Poverty/SES continuum, ranging from the very low (-1.21) to the very high (+3.47) poverty neighborhoods in which study participants lived. There is 26.2% greater and earlier risk of relapse for each standard deviation (SD) increase on the Instability continuum, ranging from -2.19 to +2.45. (Each scale contains approximately 5 SDs.) The crime factor did not reach significance in the multivariate model.

**Conclusion**

It appears that the neighborhood environment in which a vulnerable person with a schizophrenic disorder lives can produce sufficient stress to increase risk of relapse substantially over and above individual risk factors. Specifically, socially disorganized neighborhoods with high poverty/low SES and/or high levels of instability showed increased risk of quicker relapse, as well as higher rates of relapse.

**Utility for Social Work**

Although preliminary in nature, results obtained in this study suggest that individuals with schizophrenic disorders may be better served by residential placements in neighborhoods which are stable and low in poverty. These findings are particularly salient in urban areas and are highly critical for chronic and/or comorbid persons, providing the greatest likelihood of breaking the recidivism cycle. Additionally, neighborhoods low in crime are important for comorbid individuals.

Enhancing the individual protective factors (e.g., low chronicity, noncomorbidity, education) found in this and prior research is also a sound practice strategy. For example, social work would do well to capitalize on the favorable outcomes of first admissions. This study would argue for early intervention to prevent and/or treat psychotic episodes. Likewise, newer forms of integrated mental health and substance abuse services are pivotal in reducing comorbidity. Further, supportive services in the area of education, as well as employment programs providing realistic opportunities for entry into the mainstream workforce (i.e., supported employment rather than traditional vocational rehabilitation), are basic in extending community tenure.

An important and timely issue is ethnic/racial disparities in service provision, currently a leading topic in health and social services. The largest subgroup of persons in this sample consisted of young, single, Black males most of whom fell into the high chronicity category. Early access to high quality treatment, both public and private, is essential for this group, as well as for other chronic individuals who are often treated in public facilities only.

The role of environmental stress in mental health has been understudied when compared with biological and psychological stressors. Outcomes from this study lend support to assertions that the environmental context of individual risk factors must be
recognized and determined if social workers are to make headway in reducing relapse and extending community tenure for persons with severe mental illness.
References


