Brain Impairment and Psychosocial Adaptation in Schizophrenia

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Statement of the Research Problem

This study enhances social work's biopsychosocial knowledge base in the area of schizophrenia by incorporating information from the biological revolution in psychiatry and specifically from the discipline of neuroscience. Recent research in the neurosciences, which has sought to locate a specific brain area or chemical process whose malfunction leads to schizophrenia, corroborates earlier beliefs that schizophrenia is a group of brain diseases, rather than a single disease (Taylor, 1987; Torrey, 1988). However, when treatment programs are designed for persons with schizophrenia, there is often the assumption that all such persons experience the same illness. The current literature does not fully describe the different types of schizophrenia that appear to exist. By expanding our knowledge of these subtypes, we are in a better position to design interventions that can be individualized to each person's needs, rather than applying the generally effective treatments to all persons with schizophrenia. Instead, we can work toward developing an array of more effective interventions that better meet the needs of each sub-type of schizophrenia.

Research Background

Currently, we are unable to directly relate structural brain damage to a specific sub-group of persons with schizophrenia. Frequently, those persons with enlarged ventricles and other forms of brain atrophy do not respond as well to neuroleptic drugs as do persons with normal brain structure (Andreasen, 1984). Persons with structural brain anomalies tend to have a more chronic course of illness and to demonstrate more social and intellectual deterioration (Andreasen, 1984; Weinberger & Kleinman, 1986). They have also been found to show some evidence of poor adjustment during early childhood (e.g., lack of interest in making friends or joining in school activities) (Andreasen, 1984). From this reading of the relevant literature on brain impairment and its possible effects on behavior and functioning, a research question was developed. Do persons with schizophrenia and underlying neuropsychiatric impairment (Group A) demonstrate a different psychosocial adaptation to their chronic mental illness than those persons with schizophrenia without underlying neuropsychiatric impairment (Group B)?

Several hypotheses grew out of this research question: 1) Group A persons evidence lower levels of psychosocial adaptation to society and to their chronic mental illness than Group B persons. 2) Group A persons who experience more stress in their environment evidence lower psychosocial adaptation than those Group B persons who experience less

stress in their environment. 3) Group A persons evidence more negative symptoms than Group B persons. 4) Group B persons evidence more positive symptoms than Group A persons. 5) Group A persons evidence fewer coping skills than Group B persons. 6) Group A persons evidence a different course of illness than Group B persons.

Methodology

The design of this study was a non-experimental, "after-only" two group comparison. Forty-two persons with a diagnosis of schizophrenia were selected from a population of patients who had been seen in the Schizophrenia Program of an urban, public university hospital in a mid-Atlantic state. All subjects voluntarily agreed to participate in the study, including an in-person interview. Appropriate approval was obtained from the university Committee on the Conduct of Human Research. Subjects ranged in age from 22 to 52 years and included 10 females and 32 males. Nine subjects were African-American and 33 were Caucasian. At the time the research interviews were conducted, 38 of the participants were living in the community as out-patients and four were in-patients in a psychiatric hospital.

All prospective research subjects had undergone an MRI or CT brain scan. They were placed in Group A or B based on measurements of ventricular-brain ratio and cortical atrophy (Rieder, Mann, Weinberger, van Kammen & Post, 1983). A research psychiatrist and neuroradiologist made the determinations of which subjects had underlying neuropsychiatric impairment (Group A) and which were unimpaired (Group B). Underlying neuropsychiatric impairment served as the independent variable in the study. Data were collected during in-person interviews conducted by the researcher, who was blind to the group status of each subject. Of the forty-two subjects who participated in the study, twenty-six (62%) were classified as brain impaired, and sixteen (38%) were classified as brain unimpaired.

Demographic data were collected on each subject. Six different instruments measured dependent variables of psychosocial adaptation, course of illness, negative symptoms, positive symptoms, coping skills, cognitive functioning, and environmental stress. Instruments used were the: Quality of Life Scale (Heinrichs, Hanlon & Carpenter, 1984); Premorbid Adjustment Scale (Cannon-Spoor, Potkin & Wyatt, 1982); Scale for the Assessment of Negative Symptoms (Andreasen, 1982); Scale for the Assessment of Positive Symptoms (Andreasen, 1984); Index of Self-Esteem (Hudson, 1982); Everyday Worries Scale (Hogarty, 1992); and Mini-Mental Status Exam (Folstein, Folstein & McHugh, 1975). Statistical analyses performed to test differences between Group A and Group B included chi-square, student's t-test, correlation analysis, discriminant analysis, and multiple analysis of variance.

Results

The study found few differences between the impaired and unimpaired groups of subjects, except in average years of education (impaired subjects had significantly more education than unimpaired subjects). On the dependent variables studied, there was a statistically significant difference between the sub-groups on self-esteem, which was used as a measurement of coping. Persons with brain impairment were found to have greater problems with self-esteem. When all subjects were compared by race and gender, there were statistically significant differences between women and men and between African-American subjects and Caucasian subjects. Women tended to have a more benign course of illness, as evidenced by significantly later age of onset, later age at first use of psychiatric medications, and later age at first psychiatric hospitalization. African-Americans demonstrated a more benign course of illness. They were older at age of onset, first use of psychiatric medication, and first psychiatric hospitalization. Women also evidenced better self-esteem and demonstrated better psychosocial adaptation when compared with men. These results are consistent with the literature on schizophrenia and brain impairment.

While it is agreed that schizophrenia is a heterogeneous illness, it defies division into subgroups (Heinrichs, 1993). Attempts to discern how the subgroups differ have produced equivocal results, and this study is no exception. Few statistically significant differences were found between the neuropsychiatrically impaired and unimpaired groups. When differences were found, they frequently were so small, that it is difficult to distinguish one group from the other. The finding that African-Americans have a significantly more benign course of schizophrenic illness is a contribution to the literature, since race as a variable for study has not been generally reported in the research literature on schizophrenia.

Utility for Social Work Practice

This study is an example of how different disciplines can and must work together to understand and intervene effectively with persons who have schizophrenia. While as social workers we have long described our conceptual base as biopsychosocial, we do not often include the biological in our research efforts. This study is a beginning attempt to demonstrate the usefulness of widening our conceptual lenses to incorporate some of the recent findings from the neurosciences into social work practice. It is imperative for social workers to appreciate that schizophrenia is a heterogeneous illness since it is often social workers who design and implement treatment programs for the seriously mentally ill. The knowledge that has been gained from this study helps to more clearly describe two subgroups of persons with schizophrenia: brain impaired and unimpaired. In addition, there is evidence about other subgroups that might add to our knowledge of the heterogeneity of this disorder.

The finding that brain impaired persons have more problems with self-esteem can have important implications for social work practice with long-term mentally ill clients. Presently,

problems with self-esteem are not routinely assessed in persons with schizophrenia. Since the vast majority of persons with schizophrenia will not have undergone a brain scan and been labeled as brain unimpaired or not, it is necessary to use treatment strategies that include enhancement of self-esteem.

By using a stress-vulnerability framework (which was used to conceptualize psychosocial adaptation) this study has highlighted the importance of stress in the development of schizophrenia and its relapse. The instrument used to measure stress, the Everyday Worries Scale, has provided further data about the stressors that seem most burdensome to persons with a schizophrenic illness (financial concerns, being lonely, expectations of others). Study results also found a relationship between stress and quality of life. Using an instrument such as the EWS on an ongoing basis to measure stress would be useful, since it is easily administered and could provide the practitioner and client with ongoing data about what is causing stress.

The differences found between women and men in this study have implications for social work practice. Women were found to have higher self-esteem and a better quality of life. This information can help practitioners to be more sensitive to possible differences and treat persons in a more unique way. There are also programmatic issues which can be influenced. Since it appears that women handle their chronic mental illness in a different way than men do, women's groups could address specific problems. For example, women might benefit from vocational groups that are geared to their strengths and gaps in life experiences.

The differences found between African-American and Caucasian subjects also may prove useful to social workers. African-Americans had a later age of onset of their illness and may have a more benign course of illness. This can affect treatment planning, since a person has more likelihood of having achieved necessary developmental tasks if their first illness occurs at a later age. African-American clients may have prior educational or employment experiences and more highly developed social networks than do persons who first become ill at an earlier age. Social workers should continue such collaborative research efforts with the other mental health disciplines.

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