The Biological Basis of Schizophrenia

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Biological science is close to proving empirically that schizophrenia is a neuropathological disease process. Although the etiology is unknown, it does not appear to correlate with family systems, early attachments, communication styles, or environmental stress. This article reviews recent findings and presents a model for social work with schizophrenic individuals and their families.

NEUROPSYCHIATRIC studies using modern brain-imaging techniques are rapidly redefining schizophrenia. Physical and chemical changes found in the brain have largely discredited beliefs that environment, attachment, family interactions, or stress cause schizophrenia. Combining the new biological knowledge with methods of social work practice is of immediate importance, especially when one considers the number of individuals who suffer from schizophrenia and the number of families that are affected by a member's illness. For example, Torrey reported that "on any given day there are 600,000 people with schizophrenia under active treatment and each year another 100,000 Americans are diagnosed with it for the first time."[1] In 1978, the President's Commission on Mental Health indicated that "there are as many schizophrenics in America as there are people in Oregon, Mississippi and Kansas, or in Wyoming, Vermont, Delaware and Hawaii combined."[2] Carpenter and Keith found that the direct and indirect financial costs created by this illness in the United States are greater than the total expenditures required for treating all types of cancer combined.[3] Unfortunately, federal support for research on schizophrenia represents about "$7 per patient compared with over $300 per patient with cancer."[4] This article outlines the recent biological findings regarding schizophrenia and presents a model for social work interventions with schizophrenic individuals and their families.

BIOLOGICAL VIEW

Researchers at the National Institute of Mental Health (NIMH) classify schizophrenia as a group of brain diseases. It is known that individuals with the illness may undergo both structural and functional neurological changes. How the abnormalities occur remains largely a mystery. Popular theories include early viral infections, genetic makeup, and damage caused by chemical or hormonal dysfunctions. It is certain that schizophrenia can no longer be conceptualized as resulting from internal psychological conflicts or unconscious motivations. Future classifications may describe the illness as a group of neurobehavioral diseases affecting the frontal cortex and limbic system.

Research on schizophrenia is focusing on the brain's frontal and temporal lobes and limbic system. The limbic system is a relatively small area that includes the hypothalamus, amygdala, septal, and hippocampal regions. The frontal lobe, together with the limbic system, is responsible for receiving, organizing, selecting, and generally making sense of both internal and external perceptions. Damage to the limbic system of animals produces inappropriate behavior, visual screening problems, and emotional changes. The evidence indicates that "abnormalities in the limbic system of human beings may produce. . .distortions of perception, illusions, hallucinations, feelings of depersonalization, paranoia, and catatonic like behaviors. . .in short, the symptoms of schizophrenia.[5]

In the past, direct observation of neurological changes in the brains of schizophrenics was impossible. As a result, many studies that found hints of physiological differences were inconclusive and could not be replicated. In the past ten years, however, neuroscience has acquired tools that allow for more direct methods of research on the brain. The new results, which often can be replicated, have dramatically linked schizophrenia to organic brain pathology. These advances have been made primarily with the use of computerized axial tomography (CAT scan), magnetic resonance imaging (MRI), regional cerebral blood flow (rCBF), positron emission tomography (PET scan), and brain electrical activity mapping (BEAM). A brief description of each of these techniques and the scientific contributions they are making is provided next. This information is particularly important to social workers who must offer psychosocial education to families, participate in diagnostic workups, and develop treatment plans for families and individuals with schizophrenia. Assisting families to relieve their guilt, understand the illness, reduce the stress they experience, and mobilize their resources are major tasks of social workers. The incorporation of new neurological information and research can greatly assist social workers in these tasks.

NEW TECHNIQUES

CAT Scan

The CAT scan provides a two-dimensional black-and-white X-ray-type picture of the surface and the inner tissue of the brain. Weinberger and Kleinman reviewed over 30 significant CAT scan studies of schizophrenia, summarizing the work that had been accomplished from the first project in 1976 to the present. They concluded that "the vast majority of these studies

CCC Code: 0037-8046/87 $1.00

found evidence of structural brain pathology in schizophrenia."[6] That is, the images of brain tissue from people with schizophrenia are, on the average, physically different from those of control groups with no history of schizophrenia. The consistent primary physical abnormalities that have been found are enlarged lateral and third ventricles and a decrease in the size of the brain (cortical atrophy). These changes have been documented to occur prior to psychiatric treatment and often can be seen at the very onset of the illness. Family studies have found that nonschizophrenic siblings of schizophrenic patients, including monozygotic (identical) twins, do not show structural impairments of the brain.[7]

It is not clear when these changes occur, how they interact with the other neurological systems, or why some schizophrenics have enlarged ventricles and others do not. Both prospective and retrospective studies have indicated that schizophrenics with clear structural markings tend to spend more time in hospitals and have greater neurological impairment, a poorer potential for rehabilitation, and possibly a greater number of suicidal behaviors.[8] Weinberger and Kleinman pointed out that the CAT scan findings must be considered as group data and cannot be used for individual diagnoses of schizophrenic patients. Weinberger and Kleinman made the following statement about CAT scan findings:

> At most, they indicate that a structural neuropathological process is associated with the diagnoses of schizophrenia . . . its cause and role in the pathogenesis of schizophrenia are unknown. It does not appear to be an artifact of psychiatric treatment, to be progressive, or to be reversible.[9]

It should be noted, however, that the degree of illness can increase or decrease without the occurrence of changes in the areas of the brain observed in CAT scan studies.

The CAT scan is being replaced by magnetic resonance imaging (MRI). Like CAT scans, MRI provides cross-sectional two-dimensional pictures. However, it has higher resolution images, is able to focus on more defined or restricted areas of the brain, and is less interfered with by bone structures; thus, it allows for more detailed studies of periventricular structures hidden deep in the brain. Furthermore, because MRI does not expose the individual to radiation, studies may be repeated or updated more often.

PET Scan

The PET scan permits both high-resolution sliced images of subcortical sections and colored indications of brain activity so researchers can consider both the brain's structure and the interactional dynamics of the working mind. Brain activity creates changes in metabolic rates. Glucose is the primary energy source of the brain and it responds as demands are placed on an organism. The activity of the brain is studied by introducing a radioactive isotope that cannot be metabolized at the same quick rate as can glucose. It has been found that certain isotopes "tend to accumulate within brain cells in direct proportion to the brain activity at a given time."[10] PET scan instruments record the decay rate of the isotope as measured by its gamma rays. A computer then transforms the information into a colored biochemical map.

Only a few PET scan studies have been performed with schizophrenic patients, and they have been inconsistent and exploratory in nature. Their results have suggested that schizophrenics, compared to control groups, have reduced frontal lobe activity. Studies at NIMH have found reduced frontal lobe functioning both in schizophrenic patients who are receiving psychotropic medications and in those who are not.[11]

PET-scan studies are difficult to perform with schizophrenics. They require an extensive amount of time; the isotope must be injected intravenously, which causes discomfort; and the machinery is large and psychologically frightening and exposes the individual to high levels of radiation. How much these factors bias PET scan research is uncertain. As the process becomes more refined, the evidence will require additional consideration and more tightly controlled studies. However, the ability to record pictorially the metabolism of the brain and to identify differences in individuals who are suffering from schizophrenia opens new frontiers of mental health research.

rCBF Techniques

rCBF techniques allow workers to record the rate and volume at which blood moves through the major areas of the brain. An individual being studied has sensors placed on top of the head and breathes an inert isotope of Xenon (a gas) (^{133}XE). This process exposes a person to about the same amount of radiation experienced when being X-rayed during a routine dental checkup. The sensors lightly touch the top and sides of the head, causing no pain or pressure. Xenon (XE) ^{133} is immediately picked up in the bloodstream and moves through the body. A computer records the amount of isotope passing each sensor and converts the information into mathematical correlates of the volume and rate of the flow of blood for each region of the brain.

In 1986, NIMH completed two studies that used this technique.[12] The investigations mapped the blood flow of schizophrenic and control groups during states of mental resting and problem solving. Care was taken to account for changes created by autonomic arousal, psychological motivation, and the degree of personal effort. The measurements were repeated while schizophrenic patients were free of all neuroleptic drugs and while they were medicated. The researchers discovered that patients with schizophrenia—both those who were receiving medication and those who were free of medication—demonstrated significantly reduced frontal lobe activity during problem-solving periods but that control individuals showed increased frontal lobe activity upon stimulation; however, the flow of blood in the normal control individuals and in the schizophrenic patients seemed to be about the same. These complex studies further demonstrate that decreased blood flow is linked to physiological functioning rather than to issues of medication, level of automatic arousal, inattention, effort, or motivation.

The frontal lobe is responsible for organizing, screening, and synthesizing the information it receives from the rest of the brain. It is the part of the brain that is responsible for planning, evaluating, and making abstract social decisions. The inability of schizophrenics—even those whose CAT scans do not indicate structural damage of the brain's tissues—to solve problems, appear motivated, respond to schedules, overcome ambivalence, and systematically complete tasks is most likely a direct result of impairment of the frontal lobe. Furthermore, animal studies have empirically proved that certain types of damage to the frontal lobe cortex do not appear or create measurable difficulties until after preadolescent development has been completed.[13] This fact may help explain why schizophrenic symptoms usually do not appear in humans until late adolescence or early adulthood. The brain is the last organ to reach maturity, and the frontal lobe develops slower than any other area of the brain. Because the human brain does not completely develop until an individual reaches the early twenties, damage to the brain—especially the frontal lobe, which is more highly developed in the human than in any other animal—that occurs in the pre- and postnatal periods could logically require years to be expressed.

BEAM

The rCBF studies have been corroborated by BEAM, which is another new computerized research tool. BEAM—a topographic approach—turns electroencephalographic (EEG) signals into colored maps of the brain's activity. A decrease in the flow of blood to the frontal lobe should create an increase in what is referred to as delta activity. BEAM and other computerized EEG studies have substantiated the hypothesis by finding increased delta activity in the frontal cortex region of schizophrenics.[14] Morihisa, Duffy, and Wyatt were able to replicate these frontal lobe findings and to document differences in the posterior brain activity of schizophrenics and of control groups.[15]

Additional Biological Findings

Physicians are able to draw samples of cerebrospinal fluid and study its chemical makeup. Kaufmann, among others, has found that chronic schizophrenics who have responded poorly to treatment have decreased levels of dopamine sulfate.[16] Autopsies of the brains of individuals who had a history of schizophrenia have indicated decreases in the number of neurons, diffuse changes in cells, and a difference in the size of the corpus callosum (which enables one-half of the brain to communicate with the other half).[17] Bogerts, Hantsch, and Herzer, of the Vogt Institute in Dusseldorf, West Germany, systematically researched 13 schizophrenic and eight normal brains that had been collected before the discovery of neuroleptic medications.[18] They found that although the weight of the brains in both groups was about the same, the tissue mass of the schizophrenic brains was substantially reduced in five specific areas.

Researchers also continue to investigate the role played by catecholamines, especially the neurotransmitter dopamine, in schizophrenia. Catecholamines transmit information between nerve cells. It has long been known that an increase in dopamine is associated with increased symptoms of schizophrenia. When L-dopa (a drug the body turns into dopamine) is given to schizophrenic patients, symptoms often become worse; when dopamine receptors are adequately blocked with neuroleptic drugs, the symptoms often decrease.

STRESS AND FAMILY FACTORS

Neither family interactions nor environmental stress appear to play a large role in determining who develops schizophrenia. Studies have continuously found that

> schizophrenics do not report significantly more life events preceding illness onset than do other psychiatric patients or normal respondents, nor are the events they report of a singular nature or qualitatively unlike those reported by others.[19]

Some research has indicted that stress may play a role in how often chronic schizophrenics require hospitalization.[20] These reports must be tempered with knowledge that the illness may be progressive, is biologically determined, and consists of numerous subtypes. Most likely, stress is only one of many factors that cause rehospitalizations and explains little within the total medical picture. Since 1980, a number of studies have challenged the idea that family systems or communication patterns cause schizophrenia.[21] McFarlane and Beels, who reviewed the research on families of schizophrenics, stated: "The idea that unique family processes cause schizophrenia has been all but discarded by most thoughtful figures."[22]

Some studies have reported that families with chronic schizophrenic members are more enmeshed, have higher expressed emotions, spend more time alone, and demonstrate deviant communication patterns. However, none of these factors has proved to be unique or specific to the condition of schizophrenia when studied with appropriate control groups.[23] One must question whether these systematic symptoms are not more representative of the difficulties created by a prolonged hopeless illness than as causes of the disease. A 1986 study of 82 patients with schizophrenia found that the degree of expressed emotions (enmeshment, social contact, and negative communication patterns) within a family failed to predict, with an acceptable magnitude, the rate of relapse of patients or their responses to neuroleptic medications.[24]

A study by Doane et al. of 33 patients with schizophrenia found a significant relationship between families rated as having high expressed emotions and an increased risk of relapse. They also reported that behaviorally oriented problem-solving approaches that teach concrete methods for resolving difficulties may reduce the risk of relapse.[25] However, in any illness, relapse is a multifactor process that often is independent of any single social factor or treatment manipulation. As MacMillan et al. pointed out,

> correlations between family factors and relapse rates. . . may arise not from a direct causal relationship between critical comments made by the relatives and re-emergence of positive symptoms, but from more complex relationships between severity of the disease, the burden placed on the immediate relatives, and their response to it.[26]

Falloon, Boyd, and McGill underscored these same issues in their review and analysis of research on expressed emotions.[27] Therefore, when intervening in a multivariant problem, clinicians should question treatment models that make direct causative links between behavior and illness. Many past practice methods that were based on theoretical frameworks that failed to consider biological, genetic, and environmental variables inadvertently blamed the victims. It can be expected that the dynamics of a family will change when the family is faced with inadequate community support systems, inaccurate and incomplete information from sources of treatment, and socially stigmatizing labels. How these factors relate to the onset of schizophrenia, relapse rates, and the degree of chronic dysfunctioning in patients is less clear and requires further research.

ASSESSING FAMILY ENVIRONMENTS

In the past, workers, believing that schizophrenia was the result of problems of psychosexual or family systems development, have aggressively attempted to assist patients to separate and individuate themselves from their families. The new biological findings make these interventions for chronic schizophrenics questionable. The inability to organize, solve problems, and perceive the correct social context is a neurological dysfunction that requires assistance with decision making and boundary setting and continuous vigilance by others. The family is the only system that can routinely provide such demanding care. Therefore, it is helpful if the social worker directs the family members to remain involved, connected, and positioned to maintain their parenting roles. The degree of decision making and overseeing required is often related to the chronicity of the illness. The schizophrenic should live in whichever environment maximizes the quality of life for all family members, empowers parental figures, ensures continued support by the family, and results in fewer hospitalizations. It is helpful to clarify the following issues when evaluating whether an individual is best assisted by the family in or away from home:

- What degree of independence, separation, and decision making can the patient handle?
- What decisions, boundaries, or tasks must other family members perform for the patient, and who will accept the responsibility?
- What outside resources and support systems are available to the patient and individual family members?
- What are the family's individual and collective talents, strengths, and weaknesses?
- What situations cannot be handled by the family, and which community agencies or extended family members can offer assistance?
- How emotionally and financially costly will it be to family members to maintain the patient at home?
- How emotionally and financially costly will it be to family members not to maintain the patient at home?
- Do alternative placements ensure the family's support and participation and involvement with the patient?
- In what environmental setting does the patient have the highest level of functioning?

The family is often the best advocate and case manager available to individuals with schizophrenia. Every effort should be made to resolve crises, interpersonal problems, and community issues that prevent the ill person from living at home. Before determining that the patient is better served in another setting, it is essential that the social worker make a parallel assessment of the residential environments of the family and the community. Such an assessment would include measuring the proposed organization's treatment methods and expectations in relation to the patient's level of functioning, the availability of resources, skills of the staff, ratio of staff to patients, amount of patient advocacy provided, and success rates with equally ill individuals. Although most families do not create an ideal environment, they may outperform many poorly funded community projects. Furthermore, most families are eager to increase their ability to assist the schizophrenic member and to improve the quality of home life. Creer, a British social worker, found that mental health workers seldom responded to a family's request for formal training to improve its home management techniques, problem solving, communication skills, and knowledge about schizophrenia.[28]

Research is needed to improve the identification of individuals who should be encouraged or assisted to leave the family setting. Social workers need to know not only who these people are, but how quickly or slowly the process should be. No criteria developed from controlled studies are available to enhance clinical judgment in this area. This author believes that social workers should first attempt to overcome difficulties within the family before recommending alternative placement of the patient in the community. The idea that the family environment or family pathology prevents developmental growth and rehabilitation of the patient is questionable in light of recent biological findings and the known limitations of community residential care.

Placement becomes the treatment of choice only after solutions within the family context cannot be found. The following represent some of the possible situations that could require social workers to place an individual outside the home:

- The illness is not chronic, and either the individual or family wants the move to occur.
- The patient's social functioning is high and remains stable when away from the family.
- The patient's social functioning is low but does not deteriorate when away from the family, and significant family members are able to maintain ongoing emotional, financial, and advocacy support roles.
- The illness prevents the patient from living safely at home (workers should assist suicidal or violent patients to find more structure than is normally provided in a home environment).
- Because other family members are ill or aged, they can no longer help and accommodate the schizophrenic member.
- Emotional support can no longer be provided, and it is believed that having the patient at home is harmful to other family members, who agree that the move is mostly for their benefit.
- Work situations prevent family members from caring for the ill person, and the community does not provide alternative day care, sheltered programs, or in-home services.
- The individual is being physically or emotionally abused, and interventions with the family cannot ensure the person's safety.
- The individual is being physically neglected (is not being provided food, shelter, medications, and so forth) or emotionally neglected, and professional interventions in the home cannot ensure a safe environment.
- After repeated interventions, the family members remain hostile toward and critical of the schizophrenic member.
- The patient cannot be controlled and requires a locked environment so he or she can be observed around the clock.
- No family member is willing to accept responsibility for assisting and supporting the patient.

It should be kept in mind that the foregoing are guidelines for intervention and what may adversely affect one patient may benefit another. Therefore, a differential social diagnosis and treatment plan is necessary for each patient. For example, Stevens found that, beyond the problems that arose when a relative died, dependent schizophrenics who lived with aged family members were not always at a disadvantage.[29] Families with schizophrenic members would maintain more therapeutic home environments if social workers periodically arranged short-term placements of the patients to give the families some respite from their emotional and physical burdens.

ROLE OF SOCIAL WORKERS

The view of schizophrenia as a biological disease requires that social workers provide rehabilitative, rather than psychotherapeutic, treatment for the victims and counseling for their families. In addition to the research on the biological basis of schizophrenia, more and more studies are finding that psychotherapy with schizophrenics does not work.[30] For example, a 15-year follow-up study by McGlashan of 163 individuals with schizophrenia who were treated at Chestnut Lodge (a private psychiatric hospital located near Washington, D.C., and noted for providing high-quality long-term care and psychodynamic treatment to individuals with schizophrenia) found that two-thirds of the patients did not respond to psychotherapy and remained chronically ill.[31] The patients had received superior psychosocial interventions but inadequate medication by current standards (recommendations to physicians for systematic drug therapy has greatly changed over the past few years). In summarizing his findings, McGlashan stated, "by and large the treatment as it was constituted failed to alter the momentum of this disease toward lifelong disability."[32] Individuals cannot be talked out of physical illnesses. However, social workers can assist them and their families through psychosocial education, social skills training, the resolution of grief and guilt, community assessments, advocacy, and the acquisition of resources, all of which constitute the rehabilitative model.

Psychosocial education is needed not only with patients and their families, but with providers of community care. Many halfway houses and day treatment centers continue to view schizophrenia as an issue of psychological will, and their treatment of patients often consists of insight talk therapies and work assignments. Organizations need to understand that the chronic schizophrenic's problem-solving abilities have been altered by a frontal lobe dysfunction rather than by a lack of motivation. It is the responsibility of social workers to match accurately the patient's cognitive and social abilities with the goals and programs of community treatment centers. To do so, however, they must have a working knowledge of instruments that measure social cognition, memory, anxiety, and the levels of performance of social skills. Perhaps, what is most important is that social workers must advocate for a system of care that provides levels of residential treatment and structured group-living situations in the community.

The family members need assistance in comprehending intellectually and emotionally that their loved one has an incurable disease; hence, one focus of treatment is to relieve the family members' grief and guilt. Furthermore, while they are learning to accept that schizophrenia is an illness, family members must start the difficult and emotional process of determining how to provide for the ill member. In this regard, social workers can provide family members with professional guidance and structure and teach them problem-solving methods, all of which ease the crisis and help them complete the process.

During problem-solving sessions, the social worker must be an advocate for both the patient and the individual family members. However, first he or she must assess the structure of the family because styles of problem solving, talents, values, and world views are measured within a familial as well as an individual and a cultural context. The family members' individual and combined abilities to contribute physically, emotionally, and economically to the welfare of the patient and of each other must be openly reviewed.

The teaching of concrete social skills appears to offer the most assistance to both chronic and less-impaired schizophrenic patients. A two-year study of nonchronic patients who were receiving neuroleptic medications found that social problem-solving therapies improved the patients' performace of roles and reduced their rehospitalizations significantly more than did insight-oriented treatments.[33] Falloon and Liberman reported that "family interventions and social skills training may contribute significantly to the clinical and social outcomes acheived by optimal pharmacotherapy."[34]

The formation of social interventions and goals requires assessments beyond the simple diagnostic criteria of the *Diagnostic and Statistical Manual of Mental Disorders* (Third Edition), commonly called DSM-III.[35] High-quality social work treatment can best be planned after assessing the patient's (1) home and community ecological environment, (2) academic knowledge, (3) social cognitive abilities, (4) level of current and past social skills functioning, (5) quality and quantity of social support systems, and (6) degree of medical chronicity. This assessment allows one to devise a multidimensional treatment framework that differentially targets appropriate interventions to the patient, the family, individual family members, the community, and the hospital or the clinic setting. Summers and Hersh argued that "assessment and treatment planning for . . . chronic psychopathology must rely on conceptualizations of levels of functioning which are not to be found in DSM III."[36] A determination of the functional levels of individuals with schizophrenia needs to incorporate concrete biological, neuropsychological, and social factors. This type of assessment is best accomplished using a multidisciplinary approach because it is difficult, if not impossible, to treat complex neuropsychiatric problems in isolation or independent of other professional knowledge.

The next section describes practice methods, developed by the author, that represent an effort to integrate the new biological findings and to identify the specific treatment, case management, advocacy, and community policy roles and responsibilities of social workers on a multidisciplinary team. Each statement is a hypothesis that requires confirmation through further research. The methods were designed for working with schizophrenics who are at least partly connected to their families. The needs and conceptualizations of treatment for homelesss schizophrenics are beyond the scope of this article.

PRACTICE METHODS

Psychoeducation. The social worker should help the family and patient understand that schizophrenia is a biological disease. He or she should take time to explore their fantasies of how the illness started and reassure them that it is not the result of poor parenting or stressful enivronmental events. Anderson, who, with her colleagues at the University of Pittsburgh, developed a series of psychoeducational workshops and training methods for families with a schizophrenic member, emphasized the importance of joining with the family, demonstrating concern for each member, and creating an alliance before attempting to educate them.[37] This "family-connecting" stage also includes listening to the ideas and feelings of family members and learning what does and does not work with the particular patient.

Alleviating grief and fear. Each family member, including the patient, should be encouraged to explore the dreams once held for the schizophrenic individual, along with current fears, and to grieve the loss of the schizophrenic member's mental health and problem-solving abilities. In addition to fears about the patient, family members often are worried that they may develop schizophrenia. Many find this fear difficult to express and require the subject to be introduced many times before they acknowledge this fear.

Individuals with extreme concern about developing schizophrenia or genetically passing it on to their future children require short-term problem-solving interventions. It is helpful to arrange for the individual to speak directly with a professional involved in genetic counseling. At a minimum, all patients and family members need assistance in understanding and processing epidemiological information. It has been found that the siblings and the children of a schizophrenic patient have a 10 to 15 percent chance of developing the illness,[38] although a more recent study has suggested that only 3.2 percent of first-degree relatives will experience schizophrenia.[39] The risk for offspring from two parents suffering from schizophrenia increases to between 30 and 40 percent.[40]

After introducing statistical information, the worker often needs a two-step process to assist individuals. First, individuals must gain an understanding that the figures only represent estimates based on population research. Unfortunately, there is no current medical test for determining if an individual has a hereditary predisposition for schizophrenia. Second, the worker should discuss with each person what these numbers mean from a personal and an emotional perspective. Some people may decide not to have children because a 3 percent chance of developing schizophrenia (the lowest recent statistic) represents too great a risk; others are comfortable knowing their child has an 85 percent (a higher statistic from another study) chance of not developing schizophrenia. A guided process can permit each client to discover his or her own value system and apply genetic information individually.

Family members also need to be helped to grieve practical, concrete personal losses. Living in a family with a schizophrenic member is an emotionally taxing experience that deprives the family of time, money, attention, recreation, job choices, and physical energy. Often job promotions have been turned down to permit adequate time for assisting the chronically ill individual or unwanted jobs have been retained because of health insurance benefits. The tangible and abstract personal costs of schizophrenia for each family member should be explored and authenticated by the social worker. Abstract costs include the lack of privacy in one's own home; the loss of time with a spouse, parent, or sibling; and feelings of having one's potential restricted because of obligations to a mentally ill family member. Participatory problem solving after these explorations can clarify professional roles, pertinent interventions, and the degree of help that is desired.

Exploring and resolving anger. Individuals usually become angry (and experience guilt from their anger) when an illness strikes a family member. They may also feel frustrated with and hostile toward the community for its inability to respond to their real and imagined needs. The anger of people with schizophrenia often is self-directed. Also, family members become tired of dealing with problems created by chronic schizophrenia and angered that the patient cannot understand their sacrifices. It is important for these feelings to be validated, explored, and resolved.

Finding areas of hope and connection. Families who provide daily care and support for a chronic schizophrenic require help with practical concrete problems. They also need a means of determining if they are reacting appropriately to the behaviors of and emotions expressed by the schizophrenic member. Most families worry about overreacting or failing to react during difficult periods. In this regard, the social worker can be of help by using case-management skills and compiling a list of professionals whom the family can telephone for reassurance, guidance, and problem solving during crises. The social worker can increase the benefits of a telephone support system by training the professionals to understand each individual's perceptions and needs and training the family to identify difficulties concretely and then place them in rank order. Some of these difficulties in managing and coping were reported in a Polish survey of 132 families who were caring for a schizophrenic member.[41] They included the following behaviors of the schizophrenics (listed from most difficult to least difficult): (1) suspiciousness and lack of trust, (2) irritability and nervousness, (3) apathy and lack of initiative, (4) difficulties in communication, (5) quarreling or fighting, (6) false beliefs, (7) social withdrawal, (8) jealousy, (9) hallucinations, and (10) bizarre behavior. It is interesting that bizarre behavior created the least coping problems.

Social skills training. Family members often can benefit from assertiveness training, role rehearsals, and other forms of instruction in social competence. Such training should focus on strengthening commuiation among family members and helping the family to deal assertively and effectively with community agencies. Timid or overly aggressive approaches to agencies usually stem from embarrassment at having a schizophrenic member; such behavior needs to be openly interpreted as a socially learned response that reflects past experiences with organizations and bureaucracies. Cognitive reframing is an important therapeutic and educational technique used to teach families that they are worthy, capable, and not defective.

Solving concrete problems. The social worker should help the family and the patient to solve difficulties as they arise. In so doing, it is important to identify which problems stem from the disease process and which have been caused by individual personalities, the family system, or the inadequacy of community resources.

Casework. The provision of casework to the patient and family, which should be ongoing, includes searching for community services and assessing the environmental fit between the patient and proposed resources. Once resources are identified, the social worker should determine which family members, including the schizophrenic member, require advocacy, help in being linked to a particular service, training in how to use the service and in setting realistic goals and expectations, and a means of evaluating the actual quality and worth of the service.

CONCLUSION

The biological concept of schizophrenia is fast becoming a scientific reality that social workers must understand, participate in, and incorporate into their profession's knowledge base. Effective social work with schizophrenic individuals and their families requires a social skills model, assessments of the family and the community environment, mobilization of family members, ongoing case management, and advocacy. Unlike insight-oriented psychotherapies, social skills training has been found to offer assistance to some types of schizophrenic patients.[42] However, random studies designed to determine which populations and social treatments should be targeted and the development of validated instruments for measuring outcomes, support systems, and environmental settings are greatly needed. In addition, social workers can improve their practice and strengthen social policies by learning to quantify the patients' levels of functional skills and to distinguish the cognitive limitations of mild, moderate, and chronic schizophrenics. Research of this type will help identify needed levels of care, the degree of responsibility to be assumed by patients and the community, and more realistic expectations of the outcome of treatment. The understanding of schizophrenia as a biological illness can clarify the roles of social workers, initiate new frontiers of treatment, and direct the profession toward exciting research challenges.

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Accepted May 15, 1986