

Clinical research

Characteristics, experience, and treatment of schizophrenia in China

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Assessment of differences in the characteristics, experience, and treatment of schizophrenia between China and the West highlights the importance of the interaction of biological and sociocultural factors in the onset and course of the disorder. China reports a much higher prevalence of schizophrenia in urban areas than in rural areas and, surprisingly, a higher prevalence in women than in men. Despite differences in the diagnostic criteria for schizophrenia, the pattern of positive, negative, and cognitive symptoms is similar to that seen in the West. Almost all medical treatment for schizophrenia is provided from specialized psychiatric hospitals, most of which are situated in urban centers. Antipsychotic medication (often the generic clozapine) is the mainstay of inpatient treatment. China developed a variety of innovative community-based treatment models in the 1980s, but the social and economic changes of the 1990s have made it difficult to generalize these models. Overall, approximately 70% of the estimated 4.8 million persons with schizophrenia in China do not receive regular treatment.

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Schizophrenia is a condition that occurs in all modern societies, but the prevalence, characteristics, subjective experience, treatment, and course of the disorder are, to some extent, molded by cultural and socioeconomic conditions. There has been an explosion of new knowledge about the biological determinants of schizophrenia over the last two decades, but our understanding of the interaction of biological, cultural, and socioeconomic factors in the development and course of the disorder has changed little over the same period. To effectively use our new knowledge about the biology of the disorder to improve outcomes for patients and their families, we must also understand how different socioeconomic environments affect the incidence, severity, and chronicity of the disorder. Cross-cultural comparisons, though fraught with a variety of methodological problems, can provide insights that will help bridge this theoretical divide between the biological and socioeconomic determinants of the disorder. As an example of the initial step that must be undertaken before cross-cultural research can directly address these issues, this paper describes schizophrenia in China and highlights differences in the characteristics, experience, and treatment of the disorder between China and the West that deserve further detailed study.

Characteristics of schizophrenia in China

Epidemiology

The Global Burden of Disease (GBD) study^{1,2} used the best available epidemiological data and sophisticated projection methods to estimate the prevalence of schizophrenia in eight regions around the world. For China, the estimated prevalence of schizophrenia in 1990 was 3.91 per 1000 population, so there were an estimated 4.43 million prevalent cases. This prevalence is less than half that estimated for developed countries (8.98/1000), but is similar to that estimated for India (3.36/1000).

Clinical research

As in all other regions of the world, there was a slightly higher prevalence of schizophrenia in males in China than in females (4.14/1000 versus 3.66/1000). The study also estimated that only 30% of the individuals in China suffering from schizophrenia received treatment in 1990 (compared with 80% in Western countries). Schizophrenia is, therefore, an important public health problem for China; it accounts for 1.8% of the total burden of disease and is ranked as the 18th most important health problem (in terms of disability-adjusted years life lost) in the country.

The picture obtained from Chinese epidemiological studies is somewhat different. Two World Health Organization (WHO)-supported epidemiological studies of mental illnesses have been conducted in China, one in 1982^{3,4} at 12 locations around the country and one in 1993⁵ at 7 locations around the country. These studies randomly selected subjects 15 years of age and older in urban and rural populations at each location and obtained information about them from key informants (family members, local health care workers, and local officials) using a brief screening instrument; a psychiatrist then administered the Ninth Edition of the Present State Examination (PSE-9)⁶ to those who screened positive and, on the basis of this examination, determined the psychiatric diagnosis using *ICD-9 (International Classification of Diseases, Ninth Revision)* criteria. Projecting the reported point prevalence for schizophrenia in urban and rural areas to the corresponding population groups in the country, the national point prevalence for those aged 15 and older was 4.02 per 1000 in 1982 and 4.91 per 1000 in 1993. If one assumes a zero prevalence in persons under 15 years of age (as is done by the GBD study), the point prevalence for the entire population would be 2.60 per 1000 in 1982 and 3.58 per 1000 in 1993. Based on these rates, there were 2.72 million prevalent cases in 1982 and 4.24 million prevalent cases in 1993, a 56% increase in the absolute number of cases in 11 years. This large increase is only partly due to increased prevalence; the main reasons were the rapid increase in the size of the population at risk (the number of persons 15 years of age or older increased from 675 million to 864 million) and the rapid urbanization of the population (the proportion of the population living in urban centers, where the prevalence is higher, increased from 21% to 28%). Applying the 1993 results to the 1999 population, there were an estimated 4.77 million prevalent cases in 1999.

The GBD study does not differentiate urban and rural populations, so the Chinese studies provide valuable information about the role of socioeconomic factors in the course of the disorder. Both Chinese studies found the point prevalence of schizophrenia in urban areas to be significantly higher than that for rural areas: in 1982 the urban point prevalence for persons 15 years of age or older was 6.07 per 1000 (116/19 116) versus a rural prevalence of 3.42 per 1000 (65/19 020) (chi squared = 19.26, $P < 0.001$) and in 1993 the urban point prevalence was 6.71 per 1000 (59/8799) versus a rural prevalence of 4.13 per 1000 (43/10 424) (chi squared = 6.02, $P < 0.025$). There are several possible explanations for these differences.

- These results could be seen as a within-country confirmation of the International Pilot Project on Schizophrenia⁷ findings that persons from less-developed countries are more likely to have a full recovery from a schizophrenic illness than persons from developed countries. Overall, the rural areas in China are much less developed than the urban areas, so a higher rate of full recovery in less-developed areas would lead to lower overall prevalence in the rural population (assuming similar urban versus rural incidence).
- The tighter social networks and lower occupational demands in rural areas could result in a lower incidence of schizophrenia because fewer acute psychotic episodes progress to a chronic illness.
- Given that most rural patients do not receive treatment and most urban patients do receive treatment, higher urban prevalence could occur because involvement with the treatment system increases stigma, discrimination, and chronic social dysfunction.
- There may be a higher rate of death among schizophrenic patients in rural areas than in urban areas.
- There may be some degree of “social drift” of patients to urban areas, but the two studies did not sample temporary rural residents living in urban areas (the “floating population”) and almost all persons continue to live with their families after developing a serious mental illness, so it is unlikely that social drift is a major factor in the reported differences.
- The differences may also be due to methodological problems in the studies. For example, the screening method (using key informants) and the examination method (using a translated version of the PSE-9) may be less sensitive in rural areas where the level of illiteracy is much higher than in urban areas.

Unlike the GBD estimates, both the 1982 and 1993 studies found that the point prevalence for schizophrenia was much higher in women. In 1982, the point prevalence for women 15 years of age or older was 5.91 per 1000 (112/18 964) versus a male prevalence of 3.60 per 1000 (69/19 172) (chi squared = 10.74, $P < 0.005$) and in 1993 the point prevalence for women was 6.65 per 1000 (64/9619) versus a male prevalence of 3.96 per 1000 (38/9604) (chi squared = 6.62, $P < 0.025$). It is certainly possible that these surprising gender-based differences in rates are due to methodological problems. For example, key informants may have been less likely to label men's behavior as "unusual" and men who were interviewed may have been less willing than women to acknowledge symptoms. However, Chinese psychiatrists are convinced that this is a real difference,⁸ so we must also consider other possible explanations for the higher rates in females: China-specific differences in the socio-economic prospects of women and men (particularly in the rural areas) could, potentially, produce differences in the incidence and remission rates of the disorder by gender. There are, moreover, other gender-specific characteristics of schizophrenia in China that differ from those in the West. For example, the long-held belief that males have an earlier age of onset⁹ is not confirmed in some Chinese studies¹⁰ (and is also questioned in some studies in India¹¹).

Long-term follow-up studies of first-episode incident cases of psychoses in urban and rural areas are needed to fully understand the unique social epidemiology of schizophrenia in China. The advantage of conducting such studies in China (versus multi-country studies) is that they could reduce the variance due to "culture" and, thus, address important questions about the relative roles of biology and socioeconomic factors in the incidence and course of psychotic disorders, including schizophrenia.

Chinese diagnostic criteria

The formal diagnostic criteria currently employed by Chinese psychiatrists are those found in the *Chinese Classification of Mental Disorders, third edition, revised (CCMD-3)*, which has just recently been published (in April 2001) by the Chinese Society of Psychiatry.¹² This diagnostic classification system, which has undergone several revisions over the last few years, has similarities to both the *Diagnostic and Statistical Manual of Mental Disorders (DSM)* and *ICD* systems, but maintains its

unique elements based on the experience of Chinese clinicians.¹³ The criteria for schizophrenia in the *CCMD-3* have several differences when compared with those in *ICD-10* and *DSM-IV*.

- *Symptomatic criteria.* In the Chinese system at least two out of the following nine groups of symptoms are required during the acute phase of the illness: repeated auditory hallucinations; thought disorder (loosening of associations or poverty of thought); thought insertion, withdrawal, or blocking; experiences of being controlled or of thought broadcasting; primary delusions; illogical thinking, symbolic thought, or neologisms; inappropriate affect or marked apathy; catatonic or bizarre behavior; and avolition. The inclusion of inappropriate affect and the subdivision of delusions into three separate categories are two important differences between the Chinese and Western diagnostic symptoms.
- *Severity criteria.* Unlike other systems, the *CCMD-3* requires loss of insight during the active phase of the illness and either significant social dysfunction or an inability to communicate effectively.
- *Duration criteria.* Previous versions of the Chinese diagnostic criteria required 3 months of continuous active symptoms (longer than the 1-month duration criteria of *ICD-10* and shorter than the 6-month duration criteria of *DSM-IV*), but the new version of the Chinese criteria now only requires 1 month of continuous active symptoms, similar to the *ICD-10* criteria. The Chinese system does not consider prodromal or residual symptoms as part of the 1-month duration criteria.
- *Diagnostic subtypes.* The Chinese system includes "simple schizophrenia" among the subtypes; these patients must have 2 years of continuous negative symptoms and never have an episode of positive symptoms.

In the 1980s, there was widespread overdiagnosis of schizophrenia in China^{14,15}; many patients who Western clinicians would consider as suffering from affective disorders were diagnosed as schizophrenic by their Chinese counterparts. In the 1990s, the widespread promulgation of the formal Chinese diagnostic system largely eliminated this problem,¹⁶ though it still occurs among poorly trained psychiatrists in smaller hospitals. Despite the differences in the formal criteria, almost all patients diagnosed by well-trained psychiatrists as suffering from schizophrenia in China today would be readily identifiable as suffering from schizophrenia by Western clinicians.

Clinical research

Symptomatology

One important question is the extent to which cultural factors mold the expression of biologically based mental disorders such as schizophrenia. Chinese clinicians did not focus much attention on schizophrenic patients' negative symptoms until the late 1980s and have only recently started to pay attention to cognitive symptoms. Assessment of Chinese inpatients' symptoms¹⁷ has found that negative symptoms are largely independent of positive symptoms and that the interrelationship of positive and negative symptoms is quite similar to that reported for Western patients. About 80% of Chinese patients acutely admitted to psychiatric hospitals have full remission of both positive and negative symptoms during the standard 3-month admission.¹⁸ There is little research yet available on cognitive symptoms in Chinese schizophrenic patients, but the available studies¹⁹ suggest that the cognitive deficits among Chinese patients are similar to those among Western patients.

This does not, however, mean that culture plays no role in the patterning of symptoms in schizophrenia. The content of the delusions experienced by schizophrenic patients in China has changed over time in parallel with social changes.^{20,21} Moreover, detailed assessment of 448 schizophrenic patients at admission using a Chinese version of the Scale for Assessment of Positive Symptoms^{22,23} found that Chinese patients are more likely than their Western counterparts to experience erotomanic delusions (9.4%) and delusions of control (20.8%), and are less likely to experience thought broadcasting (7.4%), thought withdrawal (5.1%), and thought insertion (4.5%). These Chinese findings should be considered in the ongoing debates about the diagnostic criteria for schizophrenia: given the effect of cultural factors on the content of delusions and the difficulty of assessing the "bizarreness" of delusions cross-culturally, the wisdom of assigning greater diagnostic significance to bizarre versus nonbizarre delusions—as is done in *DSM-IV*—is in doubt.

The experience of schizophrenia in China

In China, as in many developing countries, the primary responsibility for interpreting the bizarre symptoms of schizophrenia and for managing a schizophrenic illness falls on the family, *not* on the individual, the health care system, or the society as a whole. Psychiatric hospital beds are limited (1.2 per 10 000 popula-

tion), there are no half-way houses or other intermediate care facilities, and state authorities actively return homeless persons to their families, so well over 90% of the 4.8 million persons currently suffering from schizophrenia in China live with family members.²⁴ (By contrast, an estimated 40% of the 1.2 million schizophrenic patients in the USA live with family members.²⁵) Traditionally, family members in China assume responsibility for all the health care decisions of a seriously ill individual; in the case of schizophrenia, the decision about when to seek care and where to seek care is that of the family, not of the individual. With the exception of serious forensic cases (eg, murder or arson), there is no formal commitment procedure for mentally ill patients; the family decides when the patient is admitted (typically to a locked inpatient facility) and has the power to discharge the patient at any time.

Beliefs about causes and health care seeking

Very few patients with schizophrenia in China or their family members consider biological factors important causes of the problem. In a study in Suzhou and Siping (cities in Jiangsu and Jilin provinces), 245 family members of 135 schizophrenic patients attributed 84% of the cause of schizophrenia to social, interpersonal, and psychological problems²⁶; even when prompted, *none* of the respondents considered schizophrenia a "disease of the brain." Family members of well-educated urban patients are more likely to employ internal attributions, blaming the condition on some defect in the patient, such as "personality problems"; family members from rural areas are more likely to use external attributions, blaming the condition on factors outside of the patient's control, such as spiritual or mystical forces.

The family's hierarchy of resort to care providers is determined by their beliefs about the causes of the problem and the availability and cost of different types of providers. There are many possible choices: specialist psychiatrists (almost all of whom are situated in urban psychiatric hospitals), Western-style general physicians, traditional Chinese medicine (TCM) physicians, herbalists, acupuncturists, Buddhist monks, shamanistic healers, and others. Chinese families are very pragmatic in their utilization of services; they often try a variety of modalities (either sequentially or concurrently) to find the method that generates the most desirable outcome.

Many rural residents start their care-seeking journey with a local shaman who, they hope, will help explain the bizarre thinking or behavior of their ill family member: one study²⁷ of 300 schizophrenic patients treated in the outpatient departments of six psychiatric hospitals in central Hunan province found that 30% had first seen shamans, and another study²⁸ from Hubei province found that 74% (286/387) of patients from rural areas admitted to a psychiatric hospital had first seen shamans.

Stigma

In the Chinese worldview, schizophrenic patients' occasional disruption of social order and their failure to act in ways that promote social harmony are considered serious transgressions of social norms. Given the public's fear of the mentally ill and of their potentially disruptive effects, the community approach to the mentally ill is primarily focused on control and only secondarily on treatment. A 1999 study about attitudes toward the mentally ill in Beijing²⁹ found that over 60% of 254 randomly selected community members believed that persons with severe mental illnesses should not be allowed to marry or have children, and about 40% believed that the mentally ill should not be allowed to live in the community, return to work, or attend university.

These beliefs make it extremely difficult for persons who suffer from a serious mental illness to obtain a job or get married, and so most patients remain dependent on family members for their entire life. Thus, it is not surprising that family members often delay necessary treatment for fear of being stigmatized and frequently go to extreme lengths to prevent neighbors and other acquaintances from discovering the family secret. In most cases, the secret eventually comes out, resulting in severe negative consequences for the individual and the family. Combining data from a number of studies undertaken in several locations around the country from 1990 to 1998, 84% (712/847) of family respondents of schizophrenic patients reported that social stigma affected the daily lives of their ill family member and 51% (434/847) reported that social stigma affected the daily lives of healthy family members. In a Beijing study²⁹ over 40% of the 211 schizophrenic patients interviewed felt that their work unit discriminated against them and that their neighbors looked down on them and their family; 28% reported moving their homes to avoid stigma.

Family burden

The economic and emotional burden of caring for a schizophrenic family member in China is quite high. Among family members of 456 admitted schizophrenic patients from around the country,²² 65% reported that the illness had a severe effect on healthy family members' emotional health over the prior 3 months, 46% reported a severe effect on family finances, and 39% reported a severe effect on healthy family members' work. Assessment of family members with a revised Chinese version of the Camberwell Family Interview^{30,31} found that between 40% and 50% of coresident family members of schizophrenic patients have high expressed emotion at the time of the patient's admission. (The ability of this measure to predict subsequent relapse in China has not yet been fully assessed.) As would be expected, families with a schizophrenic family member in China have higher levels of conflict, lower cohesion, and lower adaptability than matched control families.³²

Treatment and rehabilitation of schizophrenia in China

With a few exceptions, there are no psychiatric wards in general hospitals and general physicians do not provide basic mental health services, and so almost all formal treatment services provided for schizophrenic patients are provided from specialized psychiatric hospitals, most of which are situated in large urban centers.³³ Over the last decade, small psychiatric hospitals have opened in the rural counties of large metropolitan districts, such as Shanghai and Beijing and in a few other locations, but the vast majority of the rural population—70% of the total population—still has no access to mental health services or psychiatric medications, so family members must bring rural patients with schizophrenia to the nearest city for psychiatric treatment. In 1995, there were an estimated 917 psychiatric hospitals in the country with a total of about 141 000 beds,³⁴ a national average of about 1.2 psychiatric beds per 10 000 population. Approximately 75% of these beds are occupied by patients suffering from schizophrenia, one third in chronic care wards (with an average length of stay of over 1 year) and two thirds in acute care wards.

The relative cost of psychiatric hospitalization has increased rapidly over the last 15 years, more than twice

Clinical research

as fast as the rise in incomes.³⁵ Less than 20% of schizophrenic patients have health insurance that covers these costs, so hospitalization poses a heavy financial burden for most families. The average 3-month psychiatric hospitalization for treatment of an acute episode of schizophrenia now costs 6000 to 8000 renminbi (US \$725-US \$969), which is more than the mean per capita urban income and more than double the annual mean per capita rural income (5425 renminbi and 2162 renminbi in 1998, respectively). Many families pay for the first hospitalization in the hope that the treatment will be curative; if the patient relapses they are reluctant or unable to make the financial sacrifice a second time, and so they may try to manage the patient at home. The rapidly increasing costs have resulted in decreased occupancy of psychiatric hospital beds around the country, which now stands at about 70%. One solution would be to decrease the mean length of stay, but hospitals are reluctant to do this because this would further reduce revenues and because there are no community services to provide the intense level of posthospitalization care needed after a brief hospitalization.

Inpatient treatment

The cornerstone of the inpatient treatment of schizophrenia in China, like elsewhere, is antipsychotic medication. Medication usage varies somewhat from region to

region and has changed over time; *Table I* shows the antipsychotic usage at the Beijing Hui Long Guan Hospital over the last decade. Almost all inpatients on antipsychotic medication have a diagnosis of schizophrenia, and so the pattern of antipsychotic usage among inpatients mirrors the pharmacological treatment of schizophrenia. Despite reports that Asian patients require significantly lower antipsychotic dosages to achieve the same plasma concentrations as Caucasians,³⁶ the acute treatment dosages administered to Chinese inpatients are similar to or, in the case of the high-potency neuroleptics, somewhat higher than those used in the West.

The quality of the inpatient management of antipsychotic medications varies widely, depending on the level of training of the clinician; in some of the smaller hospitals polypharmacy with multiple antipsychotics remains a serious problem.

Clozapine, which has been produced generically in China since 1978, is currently the most commonly used antipsychotic medication at Beijing Hui Long Guan Hospital (*Table I*), as it is in many other parts of the country.³⁷ Initially only used in refractory patients, clozapine has become increasingly popular in China since the end of the 1980s, primarily because of good clinical outcomes and low extrapyramidal side effects (which many Chinese patients are unwilling to tolerate). It is now occasionally used as a first-line drug and is fairly frequently given during the first admission of

Oral medication	Proportion of all patients on antipsychotic medication taking each type of medication (%)			Typical acute treatment dose (mg/day)	Cost for 1 month's supply (US \$)	Proportion of per capita monthly income used to pay for the medication (%)	
	1988 N=1220†	1994 N=1543†	1998 N=1393†			Urban	Rural
Clozapine	19.8	29.5	33.8	400	3.40	6.2	15.5
Perphenazine	34.6	20.1	23.3	40	2.60	4.7	11.8
Chlorpromazine	24.3	17.3	12.9	500	1.54	2.8	7.0
Flupenthixol‡	0.0	5.2	8.7	40	55.21	100.1	251.5
Haloperidol	10.1	7.5	7.5	30	1.92	3.5	8.8
Sulpride	0.2	5.8	6.7	1200	4.49	8.1	20.4
Risperidone‡	0.0	0.0	4.4	4	52.54	95.3	239.3

Table I. Most commonly used antipsychotic medications by inpatients at Beijing Hui Long Guan Hospital at three time periods, * typical acute treatment dose, and monthly cost in Beijing in 1999.

*Based on chart review of all inpatients on 28 September 1988 (N=1270), 1 June 1994 (N=1692), and 1 June 1998 (N=1505).

†Polypharmacy was relatively uncommon: 8 of the 1220 patients (0.7%) taking antipsychotics in 1988 were taking two types of antipsychotics; in 1994, 37 patients (2.4%) took two antipsychotics; and in 1998, 37 patients (2.7%) took two antipsychotics.

‡Imported medication.

a patient if the first drug administered (usually perphenazine or chlorpromazine) is not rapidly effective or has bothersome side effects. The most common reasons for terminating treatment with clozapine are sedation and hypersalivation. Blood monitoring for potential agranulocytosis was erratic in the early years of use, but, by the beginning of the 1990s, monitoring became more systematic; white blood counts with differentials are now done on inpatients taking clozapine weekly during the first 3 months of treatment and then monthly thereafter. A review of 256 Chinese publications about clozapine from 1984 to 1995 identified 29 deaths due to clozapine and a combined rate of agranulocytosis of 0.33% (25/7511).³⁸

Among the newer imported atypical medications only risperidone and olanzapine are, as yet, available for clinical use. Risperidone, unlike olanzapine, is covered by government-based health insurance, and is thus being used in a small proportion of patients. The extremely high cost of the imported antipsychotics will severely limit their use; clozapine is thus likely to remain one of the most commonly used antipsychotic medications in China for some time to come.

Other biological treatments are employed less frequently. Acupuncture is occasionally used to treat psychotic symptoms.³⁹ In most psychiatric hospitals, TCM drugs are primarily used as adjunctive treatments to improve the patient's physical condition or to reduce the intensity of the side effects of antipsychotic medications, *not* as primary treatments for psychosis. Insulin shock therapy was used fairly commonly until the mid-1980s, but is now largely outdated.⁴⁰ Though decreasing in use, Chinese clinicians still administer electroconvulsive shock therapy (ECT) (usually without anesthesia) to schizophrenic patients more frequently (21% in one sample)³⁵ than their Western counterparts; they consider ECT particularly helpful for agitated patients and for hastening the recovery of patients taking antipsychotic medication, a belief that is also held by clinicians in other developing countries.⁴¹

Almost all acute-care wards in Chinese psychiatric hospitals are single-sex locked wards in which patients wear hospital garb, so psychosocial interventions are important in preventing the sensory deprivation that often accompanies hospitalization. In some small, understaffed hospitals, acute-care patients spend most of their time sitting in their rooms with nothing to do, while in

the larger well-staffed hospitals they participate in a wide variety of activities, such as calligraphy classes, "music therapy"⁴² (listening to soothing music), and "work therapy" (typically monotonous tasks). Similarly, some chronic care wards are little more than warehouses for the severely mentally ill and the severely mentally retarded, but the better chronic care wards have an open-door policy, allow patients to wear their own clothes, and provide a variety of structured activity programs.⁴³⁻⁴⁶ China has no occupational therapists or psychiatric social workers and the small number of psychologists working in psychiatric hospitals limit their function to psychological testing (rather than providing clinical services); thus the psychosocial services that are available to inpatients are thus provided primarily by doctors and nurses.

Like everywhere else in the world, economic factors influence the treatment schizophrenic patients receive in China. Insured schizophrenic patients—primarily urban residents who work for government-supported industries—receive inpatient treatment 2.8 times more frequently than uninsured schizophrenic patients; the mean length of hospitalization of insured patients is longer than that of uninsured patients; insured inpatients are more likely to receive ancillary treatments such as TCM drugs; and insured inpatients are less likely to receive ECT.³⁵

Outpatient treatment

Almost all outpatient psychiatric services for schizophrenic patients are provided in the outpatient departments of psychiatric hospitals: there are very few free-standing community psychiatric clinics, the psychological clinics that have opened in some general hospitals over the last few years rarely provide services for schizophrenic patients, and the number of private psychiatrists (mostly physicians who have retired from the hospital system) is extremely small. The primary service provided in the outpatient clinics of psychiatric hospitals is medication monitoring. There are no data available on the pattern of antipsychotic usage in outpatient settings, but it is probably quite similar to that for inpatients (*Table I*), though the dosages used are somewhat lower. Most patients are unwilling to take depot medications so their use in outpatient settings is somewhat less than in the West (the most commonly used depot medications are haloperidol decanoate and fluphenazine decanoate).

Clinical research

Nonadherence is even more of a problem in China than in the West; very few patients remain on medication for more than 1 year after an initial admission.

As part of the new reform era (that started in 1978), hospitals in China have been forced to become economically self-sufficient; the state is no longer willing to pay for services that are not profitable. This change has decreased the willingness of hospital administrators to expend personnel and resources to provide cost-effective (but non-profitable) community services. Prior to the mid-1980s most psychiatric hospitals provided extensive outreach (“home-bed”) services to help schizophrenic patients avert hospitalization, but the need to become economically self-sufficient has forced hospitals to cut back on services that reduce hospitalization rates. Similarly, family therapy for schizophrenia^{47,48} and group psychoeducation for relatives of schizophrenic patients⁴⁹ are cost-effective ways of reducing rehospitalization in China, but psychiatric hospitals (the only source of the personnel who could provide these services) are reluctant to employ family therapy methods in their outpatient departments because this change would reduce overall hospital revenues.

Community-based services

Social welfare services for disabled persons in China experienced a renaissance during the 1980s, largely initiated and sustained by the efforts of the All China Disabled Persons’ Federation under the direction of Deng Pufang, Deng Xiaoping’s disabled son. A comprehensive range of legislation during this period recognized the extent of the problem of the disabled in the country, established the rights of the disabled and the responsibility of the state to provide for their care and employment, and set out a plan for their rehabilitation. As part of this movement, psychiatric rehabilitation was transformed from a low-status activity limited to “industrial therapy” for chronically institutionalized patients to a high status activity that provided mental health professionals with access to funding and support that were not previously available.⁵⁰

In the absence of a culture-specific theory of psychiatric rehabilitation, the indigenous models that evolved over this period were based on vague notions about the benefits of repetitive practice and social support; they involved collective activities rather than individualized assessment and skills-training. Most models were small-

scale, hospital-based experiments that never generalized to the community because of a lack of trained personnel in the community, limited funding, and lukewarm support from local officials. The community-based models that did evolve focused on providing basic mental health services for the severely mentally ill rather than on rehabilitation per se, but the use of the politically correct “rehabilitation” rubric ensured a level of support that would not otherwise have been available. Some small-scale community-based models were quite successful, particularly the comprehensive service network developed in the Zhengyang district of Shenyang (a large industrial city in northern China).⁵¹

Two large-scale community-based models—the “Shanghai model”^{52,53} and the “Yantai model”⁵⁴—were also successful. The Yantai model provided basic mental health services to the 6.3 million rural residents of the Yantai district of Shandong province via a multi-tiered delivery system. This included an advisory group in the central urban psychiatric hospital, community psychiatrists in small county-level psychiatric hospitals who trained nonpsychiatric physicians to provide outpatient psychiatric services in township-level general hospitals, and village paramedics (“village doctors”) who supervised patients in the community. The Shanghai model provided an integrated support network for persons with chronic mental illnesses (primarily schizophrenia) among Shanghai’s 13 million residents that combined: (i) community follow-up of psychiatric outpatients at primary-level general hospitals; (ii) the innovative “guardianship networks” operated by nonprofessional volunteers (usually retired workers, patients’ neighbors, and community officials) who supervised the care of patients in the community; and (iii) work therapy stations (ie, sheltered workshops) that provided an occupation to patients who had a limited capacity to work. The All China Disabled Persons’ Federation promoted the generalization of a slightly revised version of the Shanghai model to 64 sites around the country as part of their Eighth Five-Year National Development Plan (1991-1995) and to 200 urban and rural communities as part of their Ninth Five-Year National Development Plan (1996-2000). However, sustaining and generalizing these excellent models of care delivery in the 1990s has proven difficult, largely because the economic reforms have changed the socioeconomic factors that made the models possible in the first place. Community volunteers are much harder to find because more retired per-

sons are now involved in income-generating activities, so guardianship networks are difficult to develop and maintain. Many factories are laying off workers and trying to improve their efficiency, and so they no longer have piece-work to give to the sheltered workshops; without revenue producing work, many workshops have had to close because they are no longer economically viable. Moreover, many local governments are trying to reduce their expenditures, and are thus reluctant to support any expansion of health and welfare services.

Overall, community-based services for schizophrenic patients are still primarily limited to the large cities and, even there, the services are patchy; medium-size cities rarely have more than token services; and throughout most of the countryside there are no mental health services whatsoever.

Challenges and opportunities

Schizophrenia is a serious public health problem for China that the mental health care system and the social welfare system are not, as yet, adequately addressing. The socioeconomic factors that are influencing the development of health services in China are quite different from those in other countries, and so the challenges and opportunities for providing comprehensive services to persons suffering from schizophrenia are, to some extent, unique.

The challenges

- There are no psychiatric services in most of China's vast countryside, and so 70% of the estimated 4.8 million schizophrenic patients in the country do not receive treatment.
- General physicians and other health workers are unable (and often unwilling) to provide basic psychiatric services because they have little or no training in mental health, and so almost all professional services for schizophrenic patients are provided from urban psychiatric hospitals.
- Many schizophrenic patients and their family members cannot afford inpatient care or the new antipsychotic medications.
- The current economic incentives require psychiatric hospitals to maintain high occupancy, and so there is no motivation to provide high-quality outpatient or

community-based care that would reduce hospitalization rates.

- There are no occupational therapists, psychiatric social workers, or community psychiatric nurses, and so the community-based services that are available are primarily provided by nonprofessionals with little or no training in mental health.
- Lack of knowledge about mental illnesses and the stigmatization of the mentally ill limits use of the services that are available and greatly magnifies the burden experienced by schizophrenic patients and their family members.
- There is no organized family movement that could lobby for the provision of family-based services.

The opportunities

- The rapid increases in the costs of inpatient care are making community-based alternatives to inpatient care more and more cost-effective.
- The Ministry of Health and the powerful All China Disabled Persons' Federation are actively promoting the development of high-quality community-based mental health services.
- Over 90% of schizophrenic patients in China live with their families, and so family members are eager to receive education about the illness and they respond well to interventions that include social support services and family groups.
- Public awareness of the importance of psychological factors to overall health is gradually increasing, particularly in urban areas.

Conclusion

As China moves forward in the development of its mental health care system, it will have many lessons to learn from the West. However, the West also has many lessons to learn from China. Detailed, long-term assessments of the onset and course of schizophrenia in urban and rural China—with a particular emphasis on those aspects that are different from the West—will help clarify the complex interaction between biological and socioeconomic factors. These important theoretical issues must be resolved before we can translate the new biological findings into better outcomes for the large numbers of untreated or poorly treated patients suffering from schizophrenia. □

Clinical research

Características, experiencia y tratamiento de la esquizofrenia en China

La evaluación de las diferencias en las características, experiencia y tratamiento de la esquizofrenia entre China y Occidente clarifica la importancia de la interacción de factores biológicos y socioculturales en el comienzo y curso de la enfermedad. En China se encuentra una prevalencia mucho mayor de esquizofrenia en áreas urbanas que en áreas rurales y, sorprendentemente, una mayor prevalencia entre las mujeres que entre los hombres. A pesar de las diferencias en los criterios diagnósticos para la esquizofrenia, el patrón de síntomas positivos, negativos y cognitivos es similar a lo observado en Occidente. Casi todos los tratamientos médicos para la esquizofrenia se entregan en hospitales psiquiátricos especializados, la mayoría de los cuales están situados en centros urbanos. La medicación antipsicótica (con mayor frecuencia la clozapina genérica) constituye el soporte principal del tratamiento en los pacientes hospitalizados. China desarrolló una variedad de innovadores modelos de tratamiento basados en la comunidad en los 1980, pero los cambios sociales y económicos de los 1990 dificultaron generalizar estos modelos. En conjunto, de los 4,8 millones de personas que se estima presentan esquizofrenia en China aproximadamente el 70% no recibe un tratamiento en forma regular.

Caractéristiques, expérience, et traitement de la schizophrénie en Chine

L'évaluation des différences sur le plan des caractéristiques, de l'expérience, et du traitement de la schizophrénie entre la Chine et les pays occidentaux souligne l'importance de l'interaction des facteurs biologiques et socioculturels dans la survenue et l'évolution de la maladie. En Chine la prévalence de la schizophrénie est beaucoup plus importante dans les zones urbaines que dans les zones rurales et, étonnamment, chez la femme que chez l'homme. Malgré les différences de critères diagnostiques pour la schizophrénie, la présentation des symptômes positifs, négatifs, et cognitifs est identique à celle des pays occidentaux. Presque tous les traitements médicaux de la schizophrénie sont prescrits dans le cadre des hôpitaux psychiatriques spécialisés, dont la plupart sont situés dans des centres urbains. Les traitements antipsychotiques (souvent la forme générique de la clozapine) constituent le fondement du traitement des patients hospitalisés. La Chine a développé dans les années 1980 une multitude de nouveaux modèles de traitements dispensés par des centres médicosociaux, mais les changements sociaux et économiques des années 1990 n'ont pas favorisé leur extension. Au total, 70 % des 4,8 millions de schizophréniques estimés en Chine ne reçoivent pas de traitement régulier.

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