

MICHAEL R. PHILLIPS, HUAQING LIU and YANPING ZHANG

SUICIDE AND SOCIAL CHANGE IN CHINA

ABSTRACT. Using recently available data from China's Disease Surveillance Points system, we estimate that there are over 300,000 suicides in China per year; this makes suicide one of the most important causes of death in the country and makes the suicide rate in China one of the highest in the world. Moreover, the pattern of suicides in China is quite different than in other parts of the world – there are more completed suicides among females than males and rural rates are three-fold urban rates. The lack of reliable suicide data prior to 1987 makes it difficult to determine whether the rates are currently rising, falling, or staying constant. However, reports of suicides in the Chinese press and case studies conducted by the authors suggest (but do not prove) that the high rates of suicide currently experienced are related to the social changes that have occurred with the economic reforms (which started in 1978). Another possible explanation for the high rates of suicide is the large numbers of persons with depressive illness in China who remain untreated. Single-cause models of suicide (i.e., social factors *or* mental illness) do not do justice to the complexity of the processes involved and, therefore, do not provide useful information about the etiology and prevention of suicide in China or elsewhere. We describe our own dynamic model of suicide that includes five interacting factors which, we believe, collectively determine the suicide rates in a community.

INTRODUCTION

Beginning in 1989, the Chinese government has released figures on the rates of suicide in China (World Health Organization 1989) which indicate that suicide is a major health problem for the country, a finding previously unsuspected by Western scholars of China, by international health experts and by Chinese mental health professionals. Many experts both inside and outside of China remain unaware of the magnitude of this problem.

There are several reasons for the relative invisibility of the suicide problem in China. The traditional reluctance of the government to publish figures that demonstrate the existence of social problems is only gradually being replaced by an increased openness about actual social conditions in the country. Since suicidal individuals do not cause the degree of social disruption of schizophrenic patients, the law and order institutions have no vested interest in addressing the issue. Moreover, both psychiatric professionals and the public at large consider suicide a response to social stress



Culture, Medicine and Psychiatry **23**: 25–50, 1999.

© 1999 Kluwer Academic Publishers. Printed in the Netherlands.

– not the result of mental illness – so they do not see suicide as a problem that should be addressed primarily by the mental health system.

Despite these difficulties, the social changes and liberalization that have accompanied China's current economic reforms provide a real opportunity to stimulate Chinese public interest in the problem of suicide. The society is now open enough that information on suicides is publicly available. Stories on the circumstances of persons who have died by suicide are becoming quite common in papers and women's magazines. Professional groups are starting to appreciate the importance of suicide: the Committee on Risk Prevention of the Chinese Association of Mental Health was established in 1994 and has now held three national meetings. And many of the large cities in the country have started telephone hot-lines for individuals in distress, a first step in providing suicide preventive services.

This paper describes the currently available data on suicide rates in China, discusses the mental illness versus social stress causal models of suicide as they pertain to China, provides a number of case reports that suggest a relationship between social change and suicide and presents our own multi-factor model of suicide.

CURRENT STATISTICS ON SUICIDE IN CHINA

Mortality Statistics in China

China does not yet have an integrated national death registration system, so the numbers of deaths by cause must be estimated based on population-based samples. There are two sources of mortality statistics that have been publicly available since 1987: figures provided by the Ministry of Health (MOH) which are published in the World Health Organization's *World Health Statistics Annual* (WHO 1990, 1991 and 1994) that cover one-tenth of the population (about 100 million persons) and the annual reports of the Chinese Academy of Preventive Medicine's Disease Surveillance Points (DSP) (Chinese Academy of Preventive Medicine 1992, 1993, 1994, 1995 and 1996) that cover a total population of about 10 million persons. The estimated suicide rate for the two systems is quite similar: in 1990 the overall rate for the DSP system (after adjusting for the reported proportions of uncounted deaths) was 18.6 per 100,000 while that for the MOH system (applying the reported urban and rural rates to the actual proportions of urban and rural residents in the country) was 18.8 per 100,000.

The data from the MOH, unlike the DSP data, is available in English so several Western publications have used this data to describe the rates and characteristics of suicides in China (Desjarlais et al. 1995; Zhao and

Lester 1997). Among the 39 countries that provide data on suicides to the World Health Organization, China has the second highest rate of suicide in young adults aged 15–24 and the third highest rate of suicide in the young elderly aged 65–74 (Desjarlais et al. 1995). The pattern of suicides in China is different from that in most other countries: there are more successful suicides in females than in males, rural rates are three-fold urban rates, rates are particularly high in young rural females 15–24, and rates in the elderly are extremely high (Zhao and Lester 1997).

Among the countries that provide suicide data to the WHO, China is the only country that reports higher rates in women than in men, but most Asian countries report much smaller differences between male rates and female rates than Western countries (where the male:female ratio is often 3:1 or higher), and some local studies in Asian countries also find higher rates in women.¹ Few countries report rural and urban rates separately, but regional studies from India (Desjarlais et al. 1995), Taiwan (Chong and Cheng 1995) and Sri Lanka (Marecek 1989) also find higher rates in the less economically developed regions, contradicting the idea that the social isolation and crowding of urban centers cause high suicide rates. A peak in suicide rates seen in the early adult years was previously reported in Japan and Taiwan (Chong and Cheng 1995) and is currently the case in Sri Lanka (Silva and Pushpakumara n.d.); but in these countries the high rates in young adults were seen in both males and females, while in China this phenomenon is primarily restricted to rural females. High rates in the elderly, particularly men, are seen in several countries.

Figures from the Global Burden of Disease Study

Crude suicide rates usually need to be adjusted to arrive at more accurate estimates of the rates and pattern of suicide deaths. Despite being smaller than the MOH sample, the DSP sample is much more representative of the population as a whole and the DSP death registration system is actively monitored, providing a better estimate of the distribution of deaths by cause in the population.² For this reason, the authors of the Global Burden of Disease and Injury Series (hereafter, the 'GBD study') (Murray and Lopez 1996a and 1996b) – a collaborative effort between the World Bank, the World Health Organization and Harvard University researchers – decided to base their estimates of the numbers of deaths by cause in China on the DSP data for 1990. This analysis made two adjustments to the DSP data which resulted in quite different figures for the suicide rates than those estimated directly from the MOH or DSP data. (1) Rather than employing the rate of death by cause in the sample DSP population, it applied the proportion of deaths by cause from the DSP results to the

total number of deaths (in each age and sex subgroup) estimated for the nation in 1990. The total number of deaths was estimated by applying population modeling methods to the census data; this resulted in a total of 8.9 million deaths in 1990, about 15 percent higher than the 7.6 million deaths reported in the national census data (Chinese Bureau of Statistics 1996). Applying the proportions of suicides in the DSP data for each age by sex subgroup to the estimated total number of deaths in each subgroup generates a total of 280,000 suicides for 1990 and a national suicide rate of 24.5 per 100,000. (2) The GBD study also reassigned many deaths coded in the DSP data as “accidental death, cause unknown” and “other type of violent death” to suicide, which resulted in a large increase in the proportion of total deaths attributed to suicide (from 3.01% to 4.65%). Applying these revised proportions for each age and sex subgroup to the estimated numbers of total deaths in each subgroup generated a combined total of 342,700 suicides for 1990 and a suicide rate of 30.3 per 100,000, the figures that were published in *World Health Statistics* (Murray and Lopez 1996a). Projecting these estimates to the future, the GBD study estimates that there will be 534,000 suicide deaths in China in 2020 (36.4 per 100,000).

A closer look at the DSP data suggests that the second adjustment employed in the GBD study may have resulted in an over-estimation of suicide rates for China,³ but the study employed the same methods for all regions of the world, so it is reasonable to compare Chinese rates to those found elsewhere. The 30.3 per 100,000 rate of suicide in China in 1990 compares to an average rate of 10.7 per 100,000 in the rest of the world. The difference in suicide rates is even greater among females: 33.5 per 100,000 in China versus 7.1 per 100,000 in the rest of the world. Given these high rates and China’s large population (21.5% of the world’s total), suicides in China account for a large proportion of the total number of suicide deaths in the world. The GBD study estimated that 43.6 percent (343,000/786,000) of all suicides that occurred in the world in 1990 took place in the People’s Republic of China and an astounding 55.8 percent (184,000/330,000) of all female suicides in the world in 1990 occurred in China.

The accuracy of these estimates depends both on the appropriateness of the adjustments made to the crude death-by-cause data and on the accuracy of the reporting of the cause of death. There are no coroner’s reports for unnatural or accidental deaths in China and autopsies are only carried out in the few cases where the police or family members request it, so there is the opportunity for family members to influence physicians’ recorded cause of death.⁴ Anecdotal reports suggest that in some parts

of China beliefs in the evil effects of the 'wandering spirits' of persons who have died by suicide (Pearson 1995) may make families reluctant to admit that a death was a suicide, but our own experience in talking with the families of suicides is that this concern, even when present, does not result in a deliberate misreporting of the cause of death. Indeed, the relatively high suicide rates seen in China could be partially explained by lower rates of deliberate misclassification in China than in countries where suicide is illegal or where suicide results in serious social, financial and legal repercussions for the family (such as India). Resolution of this issue requires detailed assessment of all accidental deaths to determine the rates of misclassification. We are currently undertaking such a study.

Assessment of Recent Data from the Disease Surveillance System

We have used the data from the DSP sites for 1990 to 1994 (Chinese Academy of Preventive Medicine 1992, 1993, 1994, 1995 and 1996), population data provided in the 1990 census (Chinese Bureau of Statistics 1992) and information provided by the GBD study (Murray and Lopez 1996a and 1996b) to generate the detailed estimates of the numbers, rates and patterns of suicides for the entire country from 1990 through 1994 that are presented in Table 1 and Figures 1 through 4.⁵

We estimate that the average annual number of suicides in China from 1990 to 1994 was 324,711 (Table 1), somewhat lower than the 342,700 figure estimated by the GBD study for 1990 (Murray and Lopez 1996b). Of these suicides, 303,047 (93%) occurred in rural areas. The number of suicide deaths among young rural women 15 to 39 years of age was very high; 31 percent of all suicides (99,266) occurred in this high-risk group.

Based on these estimates, the mean suicide rate for the country over the five-year period was 28.7 per 100,000 population, but the rates vary dramatically in different subgroups (Table 1). The rate in women is 40 percent higher than in men (M:F = 1:1.4). This difference by gender is more evident in rural areas (M:F = 1:1.4) than in urban areas (M:F = 1:1.1) and only holds true at the younger ages (for persons under 45 years of age, M:F=1:1.9, while for persons 45 and older, M:F = 1:0.9). Rates in rural areas are three-fold those in urban areas (urban:rural = 1:3.2) and rates in the elderly are three-fold those in the young and middle aged (rate in persons 15-59: rate in persons 60 or over = 1:3.0). Several other dimensions of the social epidemiology of suicide in China have not, as yet, been studied: there may be regional differences in suicide rates, different rates in communities with different economic conditions, different rates in different minority groups and so forth.

TABLE I

Annual burden of disease for suicide in China: 1990–1994.

	ESTIMATED DEATHS DUE TO SUICIDE	OVERALL RATE OF DEATH DUE TO SUICIDE (per 100,000)	% OF ALL DEATHS DUE TO SUICIDE	TOTAL DALYs* LOST DUE TO SUICIDE	DALYs LOST DUE TO SUICIDE PER 1,000 PERSONS	% OF DALYs LOST FOR ALL CAUSES DUE TO SUICIDE
by SEX and RESIDENCE:						
URBAN FEMALES	10,842	10.65	1.79	258,697	2.54	2.16
RURAL FEMALES	173,230	38.77	5.11	4,715,950	10.55	5.31
URBAN MALES	10,822	9.89	1.49	223,565	2.04	1.53
RURAL MALES	129,817	27.48	3.36	2,570,912	5.44	2.70
by SEX						
FEMALE	184,072	33.55	4.61	4,974,647	9.07	4.93
MALE	140,639	24.17	3.07	2,794,477	4.80	2.54
by RESIDENCE:						
URBAN	21,664	10.26	1.63	482,262	2.28	1.81
RURAL	303,047	32.97	4.18	7,286,862	7.93	3.96
TOTAL POPULATION	324,711	28.72	3.79	7,769.124	6.87	3.69

* Disability Adjusted Life Year.

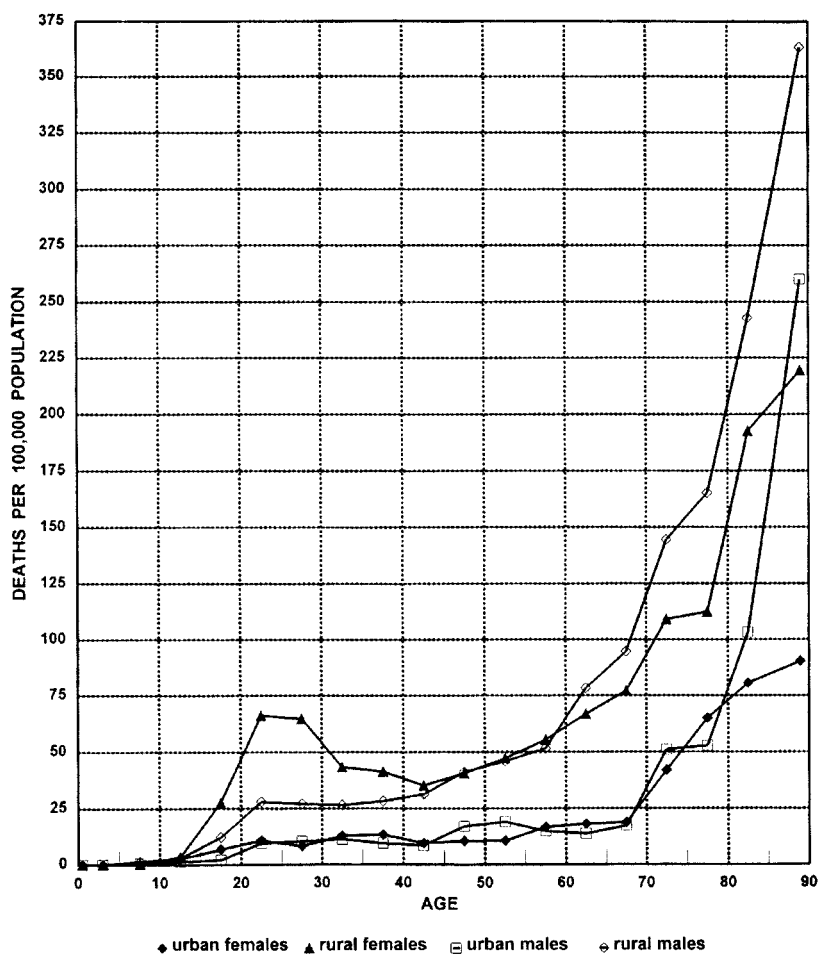


Figure 1. Rates of suicide in China: 1990-1994.

Figure 1 shows that suicide rates are extremely high in the elderly, particularly elderly men. The rates start to increase after age 65 in urban areas, but they start to increase at a much earlier age in the rural population. Figure 2 shows that despite the higher rates of suicide in the elderly, the "burden of disease" due to suicide, assessed as Disability-Adjusted Life Years⁶ (DALYs) lost per 1,000 population, is highest in young rural females.⁷

Figures 3 and 4 show the proportion of all deaths and of all DALYs lost due to suicide; these proportions indicate the relative importance of suicide compared to other causes of death and disability. Suicide is a major cause of death in China: it accounts for 3.8 percent of all deaths in the

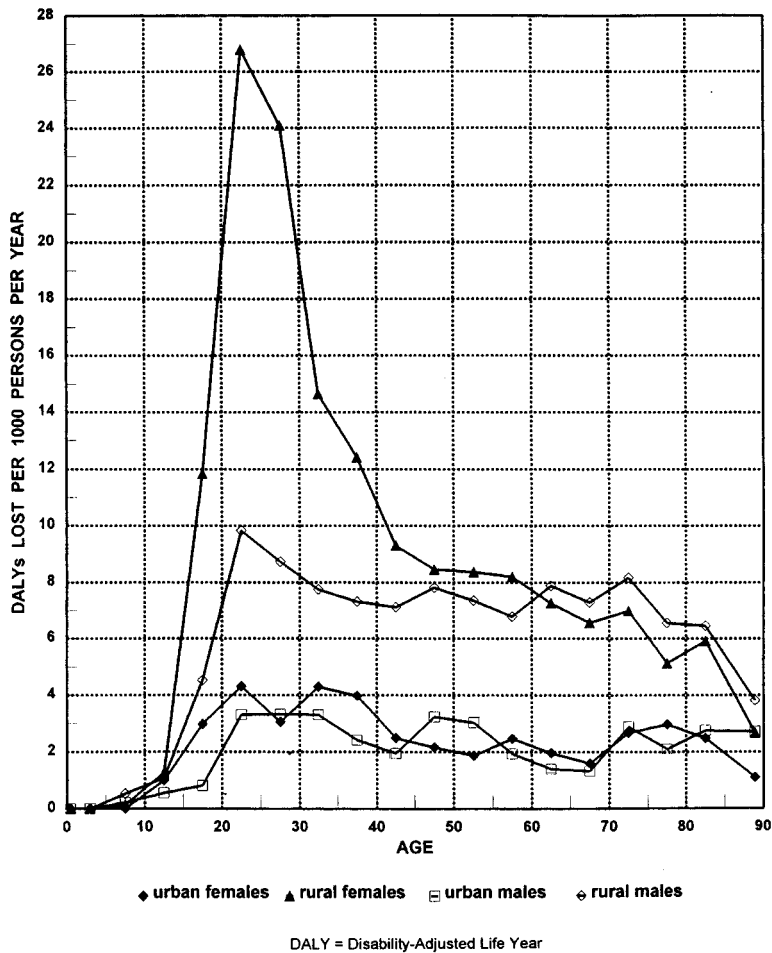


Figure 2. DALYs lost due to suicide per 1000 persons per year in China: 1990–1994.

country and for over 30 percent of deaths in rural females 15 to 29 years of age. Suicide is also a major contributor to the burden of disease in China. According to the GBD study (Murray and Lopez 1996b), suicide was the fifth most important health problem in China in 1990, accounting for 3.9 percent of all DALYs lost. We estimate that suicide accounted for 3.3 percent of all DALYs lost from 1990 through 1994. We found that suicide results in a greater proportion of the total burden of disease than ischemic heart disease (2.1% of all DALYs lost), motor vehicle accidents (2.3%), or tuberculosis (2.9%) – conditions that receive much more public and professional attention than suicide.

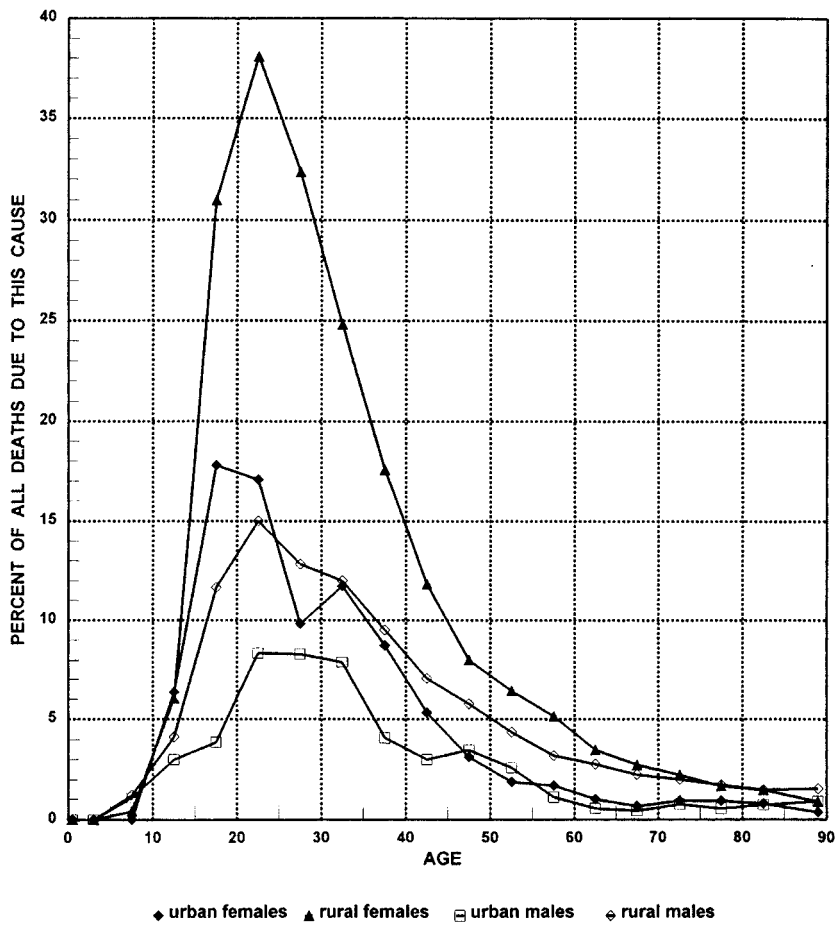


Figure 3. Percent of all deaths due to suicide in China: 1990-1994.

WHAT ARE THE DETERMINANTS OF SUICIDE IN CHINA?

Historical records (Hsieh and Spence 1980; Lin n.d.) suggest that in traditional China suicide was a culturally acceptable response to a variety of situations and was, in some circumstances, considered morally appropriate.⁸ Scholars of modern China have commented about the frequent use of suicide as a means of protest by otherwise powerless individuals (Ikels 1983) or as a means of escape from unbearable lives, particularly by young women (Wolf 1975). And some newspaper reports of rural suicides state that the deceased believed that they would be reincarnated into a better life (*South China Morning Post*, 15 November 1988).

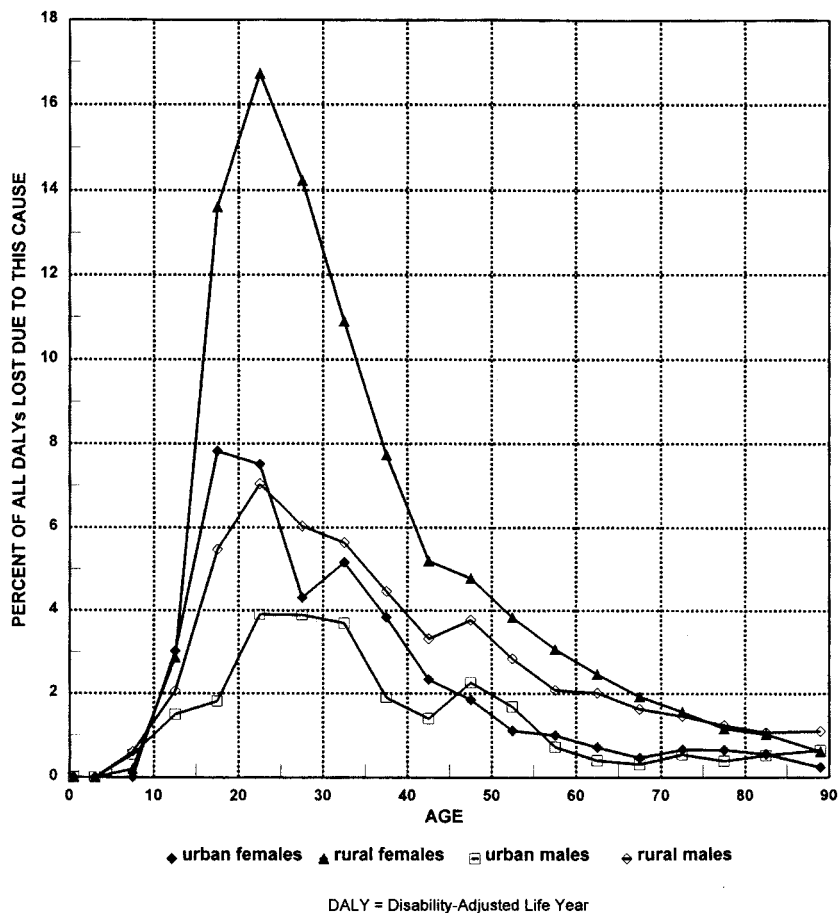


Figure 4. Percent of all DALYs lost due to suicide in China: 1990–1994.

Overall, the available evidence suggests a cultural proclivity towards suicide among Chinese, but the much lower rates of suicide in Taiwan (Chong and Cheng 1995) and Hong Kong (Chan 1993) and among Singaporean Chinese (Tsoi and Kok 1995) compared to mainland China contradicts the argument that Chinese culture *per se* produces high rates of suicide. If a predisposition to suicide does exist in Chinese culture, it must be modulated by psychological and socioeconomic factors to produce such different patterns of suicide in different Chinese communities and to produce the three-fold difference between urban and rural rates seen in mainland China.

The Mental Illness Model of Suicide

Western-trained psychiatrists tend to see suicide as a cardinal sign of mental illness and, in retrospective studies, diagnose mental disorders in almost all individuals who commit suicide, often giving little consideration to the social factors that may have caused the mental disorders. Cheng (1995) found that mental disorders – primarily depression and substance use disorders – were present in 97 percent of 116 suicides in Taiwan. But if depression, substance use disorders and other mental illnesses are the primary determinants of suicide, then these disorders (or their Chinese equivalents) would need to be more prevalent in China to explain the much higher rates of suicide.⁹ Available data does not confirm this hypothesis.

There is general agreement among epidemiologists and mental health researchers that drug and alcohol abuse disorders, though increasing in China (Shen et al. 1992), are much less prevalent in China than in developed countries. The GBD study (Murray and Lopez 1996a) estimated a 1990 prevalence of 'Alcohol dependence syndrome' in China of 0.49 percent (versus 2.27 percent in developed countries) and a prevalence of 'Dysfunctional and harmful drug use' of 0.04 percent (versus 0.50 percent in developed countries).

The available data on affective disorders is more controversial. The best study on the epidemiology of mental illnesses done in mainland China (in 1982) found that the combined point prevalence of all affective disorders and neurasthenia¹⁰ was 1.6 percent, much lower than the prevalence found in epidemiological studies in the West, which report a prevalence of depression of 5.1 percent in the United States and of 7.0 percent in Britain (Phillips 1998). On the other hand, the GBD study (Murray and Lopez 1996a) estimated similar rates of affective disorders in China and in developed countries: it reported a 1990 prevalence of 'unipolar major depression' of 1.43 percent in China compared to 1.30 percent in developed countries and a prevalence of 'bipolar disorder' of 0.40 percent in China versus 0.30 percent in developed countries. According to the GBD study, in 1990 the Chinese population experienced 28.8 million episodes of affective illness. Moreover, the GBD study (Murray and Lopez 1996b) also estimates that only 5 percent of persons with affective disorders receive treatment in China,¹¹ compared to 35 percent in developed countries. If the GBD results are correct, the much larger numbers of persons with untreated affective disorders in China could partially explain China's higher suicide rates.

The Social Stress Model of Suicide

In contrast to the Western focus on individual psychological factors, collectivist Asian cultures tend to view suicide as a social problem; so the search for the causes of suicide has always started with various social stressors, not with the identification of mental illnesses.¹² The dominant view of mental health professionals in China, India and Sri Lanka (Desjarlais et al. 1995; Marecek 1994) is that suicide is not primarily a mental health problem, but a social problem. Lists of the causes of suicide in the press, in public health publications and in many reports by psychiatrists include “mental illness” as one of the less common causes of suicide, giving it equal conceptual status with love affairs, family conflict and social maladjustment (Zhao and Lester 1997). Thus mental illnesses are considered independent conditions, not psychological states that could be caused by social stressors or that could exacerbate the effect of social stressors. Part of the reason for this approach may be that the folk conception of “mental illness” in Asia is still largely restricted to persons with severely disturbed thinking or behavior (i.e., psychotic disorders) and does not include those with affective disturbances, anxiety disorders, or substance abuse problems.

HAVE RECENT CHANGES IN CHINA PRODUCED THE HIGH RATES OF SUICIDE?

Unfortunately, the poor quality of the data on suicide rates in China prior to 1987 makes it impossible to prove that recent social changes have been associated with changes in suicide rates. The current high rates may be (1) falling from even higher rates present during the Cultural Revolution and the early part of the Reform Era because of the greater political stability and prosperity over the last five years; (2) increasing because of social stresses that have occurred as the economic reforms have taken effect; or, (3) unchanged over time.

The evidence from other Asian communities that have relatively good suicide statistics over time suggests that suicide rates *are* responsive to social changes. Taiwan has seen dramatic shifts in the rates and patterns of suicide over time in parallel with social and political changes (Chong and Cheng 1995) and Sri Lanka witnessed a six-fold increase in the suicide rate from 1950 to 1988 as the level of sectarian violence and social unrest increased (Silva and Pushpakumara n.d.). Anecdotal reports suggest that China has also experienced fluctuating suicide rates in response to the social changes and social unrest that occurred during the Land Reform

period in the 1950s (Madsen 1984) and during the Cultural Revolution in the late 1960s and early 1970s (Whyte and Parish 1984).

It is certainly reasonable to expect that the social changes brought about by the economic reforms (which started in 1978) would also influence suicide rates. Many of the case reports of suicides published in China's popular press over the last decade relate suicides to the rapid social changes that have accompanied the economic reforms. These changes include (1) the increasing prevalence of major economic losses for individuals and families due to participation in risky ventures or pathological gambling; (2) increasing rates of marital infidelity and divorce; (3) increasing rates of alcohol and drug abuse; (4) rapidly increasing costs of health care, which may make some older individuals prefer to end their lives rather than deplete family resources to receive treatment for chronic conditions; (5) weakening of family ties, which results in less social support for individuals; (6) large numbers of rural residents migrating to urban areas for temporary or seasonal work; and (7) the increasing economic and social gap between the rich and poor, which may result in higher levels of dissatisfaction with one's social and economic situation.

Many of these problems have existed throughout China's history, so they can not be considered unique to the recent economic reform era. What has happened is that the prevalence of these problems has increased dramatically with the economic reforms and so increased numbers of individuals are at risk of developing stress-induced mental illnesses and, perhaps, of committing suicide. With the possible exception of increased marital infidelity and the weakening of family ties, there is ample evidence to demonstrate that these social and economic changes have occurred during the economic reform era and that they have accelerated over the last ten years. The case reports presented below provide examples of how these social factors can lead to suicide.

CASE REPORTS

*Case 1*¹³

Mrs. Zhao died from an overdose of insecticide on 15 June 1995 at the age of 40. She lived in a rural township with her husband, two sons (16 and 18 years of age), and her 60-year-old mother-in-law. Up until about five years prior to her death, she had been a model wife: she took care of the household, did field work during the busy season and sold fish in the town market during the slack season, giving her earnings to her husband. She was quite extroverted and a little strong-willed; her competence both

in the home and outside of the home gave “face” to her husband. But then gambling became an increasingly popular activity among the townspeople. Mrs. Zhao actively took up this new fad, seeing it as a good way to make money quickly. At first she was very careful, betting no more than her earnings as a fishmonger or, occasionally, borrowing small amounts from her husband, who saw this as a harmless pastime. But after three to four years she gradually started to increase her bets and became so preoccupied with gambling that she disregarded her other responsibilities as wife, mother and householder. She had become hopelessly enmeshed in the gambling culture of the town; encouragement and arguments from her husband and even the suicide of her father-in-law due to being “cheated” in gambling in 1994 did not change her behavior. In the last year of her life she was betting about 1,000 yuan (\$125) per night (several month’s income) and used the home like a hotel. Her previous cheery disposition had turned sour and irritable; on the days that she lost she wouldn’t sleep or eat. She was constantly trying to borrow money from people; many of her former friends actively avoided her and several neighbors blamed her for bringing the gambling epidemic to the community. The night before her death she lost 15,000 yuan (\$1,875); she returned home very late and tossed and turned all night, but did not tell her husband about the huge loss. The next morning, after her husband went to work, she drank a bottle of insecticide; by the time he heard about it she had already died in the local hospital. Following local custom, her gambling debts – which totaled 30,000 to 40,000 yuan (\$3,750-\$5,000) – were nullified by her death.

COMMENT. Gambling is not a new problem for China, but the occurrence of pathological gambling in a rural female has not, to our knowledge, been reported previously. There are no available statistics on the prevalence of gambling, but anecdotal reports suggest that increased disposable income since the beginning of the reform era has resulted in much higher rates of gambling, particularly in the countryside. As more people participate in gambling it is almost inevitable that the prevalence of pathological gambling will increase. But pathological gambling is considered a problem of China’s ‘feudal’ past, so there is, apparently, resistance in the psychiatric community to recognizing it as a distinct condition: it is not included in the impulse disorders section of the most recent version of the Chinese classification of mental disorders (Chinese Medical Association 1995).

*Case 2*¹⁴

Mrs. Han was a 38-year-old peasant from a village in a relatively poor county who committed suicide by taking insecticide in mid-1994; one year later her 17-year-old daughter used the same method to kill herself.

Mrs. Han was an illiterate housewife who did heavy farm labor as well as manage an eight-person household, which included her husband, his parents, who were in their eighties, three sons and a daughter. Two years before her death, her husband started having an affair with another woman in a neighboring village who was without any means of financial support because her husband was serving a long prison term. He spent a lot of time with the woman quite openly, spent household resources on her upkeep and disregarded many of his other responsibilities. Mrs. Han argued with him about this on several occasions without effect; she complained to her friends that she felt like a maid in her own household, even after she had borne three sons for her husband. Unable to change the situation, she endured for two years and then, finally, took her life. After his wife's death her husband continued his affair with the woman; the heavy household responsibilities fell to the elder daughter, then a pretty 16-year-old who, like her mother, had never been to school. Her father, elder brother and grandparents considered this an appropriate role for the young woman in the household, so no one helped her in carrying out these chores or saw fit to decrease her workload in the family fields. Her father constantly criticized her and, when she once went to get him at his girlfriend's home because she needed his help to fix a leaking roof, he beat her. After a year of this treatment she started to talk to her friends of "joining her mother," but she delayed because she felt responsible for protecting her two younger brothers. Finally, after making seven pairs of cloth shoes for her younger brothers as a parting gift, she drank a bottle of poison and died. The response of the community to this tragedy was rapidly to help the family find a spouse for the elder son so that there would be another woman to take up the household duties.

COMMENT. Like gambling, extramarital affairs constitute a social problem that has occurred throughout China's history, but the prevalence of the problem and the community response to it have changed over time. There are no reliable statistics on the prevalence of extramarital affairs in China, but indirect evidence – reports on the problems identified by women who contact women's hot-lines, the dramatic increase in prostitution and the increasing divorce rate – certainly suggest that extramarital affairs are on the rise. This case is one of many that demonstrate the low status and limited options of rural women in China (Pearson 1995). Perhaps the most striking aspects of the case are the openness with which the affair was conducted and the community response to Mr. Han's infidelity. In the pre-reform era and early post-reform era extramarital affairs would, if revealed, result in strong community censure and, in some cases, prison sentences (Mosher 1983).

*Case 3*¹⁵

Mr. Ma was a 28-year-old divorced urban resident who killed himself by taking an overdose of sleeping pills in October 1995. He grew up in a relatively affluent family with his parents (who are middle-ranking cadres) and an elder brother. He had no major behavioral problems during his upbringing; after graduation from upper high school he took a job as an assistant manager in a small hotel. He was married in 1991, but the marriage did not seem to work partly because of his apparent sexual incompetence. He and his wife argued constantly and frequently had physical fights. He then started to drink frequently so, after three years of childless marriage, his wife sued for divorce on the grounds of his drinking and physical abuse. After the divorce in 1994 he moved back in with his parents. His drinking increased and started to affect his work; on several occasions he was found in a drunken stupor on the streets. He also started gambling at Mahjong and was constantly trying to borrow money from his parents to gamble with. In the month prior to his death he was threatened by several of the gamblers to whom he owed money. The day before his death he fought with his parents because they would not provide him with any more money; the following night he took the overdose and was found in his room by his mother in the morning.

COMMENT. A divorced male with a drinking problem and a gambling problem would be at high risk for suicide in almost any culture. The change for China is that there are now increasing numbers of urban males who fit this profile. Official census data report low but increasing rates of divorce – from 0.7 percent in 1980 to 1.6 percent in 1994 (Chinese Bureau of Statistics 1995). And several reports in the psychiatric literature describe dramatically increasing rates of alcohol abuse since the beginning of the economic reforms (Shen et al. 1992). In our limited case series, alcohol is much more likely to be a factor in urban suicides, particularly among males.

*Case 4*¹⁶

Mr. Lu was 47-year-old-man from a village in a northeastern province who died by taking insecticide on 28 July 1995. He lived with his wife, 17-year-old daughter and 15-year-old son. He had developed an unspecified neurological disease five years earlier that left him constantly weak and, despite expensive treatment, unable to work. As a result of this, their household was in difficult financial straits. Three years earlier his daughter, who had always been good at school, was admitted to upper high school, so he borrowed money for her to be able to go (it takes a minimum of 1,000 yuan [\$125] a year in tuition and board expenses for a peasant to send a

child to a county high school). Five days before his death his daughter got the exciting news that she had been accepted into university – a major accomplishment for a girl from the countryside. Mr. Lu told his brother that it would probably be better for him to die so the family could save the money that they spend on his health care to send his daughter to university. No one thought that he was serious. After publicity about his death, a fund was started to pay for his daughter's education.

COMMENT. Over the reform era the cost of medical care has increased much more rapidly than the increase in incomes (Phillips 1997), so the cost of treatment – particularly the inpatient treatment of chronic conditions – is now often beyond the means of persons without government-sponsored health insurance (about 80% of the population). We suspect, but do not yet have sufficient data to prove, that a significant proportion of suicides in the elderly are related to ill health and the desire to avoid impoverishing the family.

*Case 5*¹⁷

Ms. Li was a 19-year-old woman from a poor rural district in a distant province who, while serving as a maid in an urban household, committed suicide by hanging herself. She had come to the city one month earlier, five months after her father died. Prior to her father's death she lived with her parents and two elder brothers (both of whom were married) in a traditional family courtyard. Her father was quite dictatorial but the relationship between the children was amicable. After her father's death the status of the elder son increased and that of her mother decreased; this is a common occurrence, but it was more rapid in the Li household because her eldest brother was quite aggressive and her mother was, by nature, quite passive. Using the powerful status of her husband, the elder sister-in-law started bossing everyone around in an imperious manner, which greatly magnified the level of conflict in the household. After several vicious fights with her sister-in-law, Ms. Li felt compelled to leave the home. She had not yet found an appropriate husband, so her only option was to try to find work in the city. She came to the city, where she had no friends or relatives who could help her adjust, and enrolled with a household employment agency. She was, however, unable to do a satisfactory job so her first two employers sent her back to the agency after working for only one week. The family members of the third household noticed that she was emotionally distraught: she wouldn't talk, performed her duties in a distracted manner and had frequent crying spells. Two days before she died she asked the householder's retired father, "If I die will you seek vengeance for me?" This frightened other members of the household, and after consulting with

the employment agency, they decided to send her back. But she hung herself in her small room before they told her to leave. A few days later her brother came to Beijing; the employment agency paid her funeral expenses and gave the family 1,200 yuan (\$150) as compensation.

COMMENT: The ranks of migrant workers in China have expanded dramatically as the economic reforms have progressed; they currently number over 100 million. Most of them are men who work on construction projects in the urban areas, but a significant minority are women who work in the service sector or who find work in factories. The unproven assumption is that these transients experience greater psychosocial stress because of the discrimination they face in the cities and because of being separated from their families. But the reality is much more complicated. Many of the migrants have a less stressful life as transients because migrant labor allows them to escape extreme poverty or unbearable family environments, and some of them – as in this case – have pre-existing psychological problems that are unrelated to their transient status.

*Case 6*¹⁵

Mrs. Tai was a 29-year-old woman who died on 5 July 1996 four days after taking an overdose of insecticides. She lived in a middle-income village with her husband and 5-year-old son. She was quite extroverted, had several close friends and, by all accounts, had a fairly good relationship with her husband. As is true in many rural households, she and her husband had an argument about once a week, but things usually cooled down an hour or so later. These arguments often got louder and more frequent during the heavy planting and harvesting seasons because she would have the double burden of fieldwork and housework. On the day she took the overdose, she had a particularly bitter fight with her husband in the fields (with many people present); he was upset with her because she wanted to rest while there was a lot of work still to do. At the peak of the argument she tried to hit him, the first time she had ever done this. Her husband then went home to prepare his own meal while her friends calmed her down; they report that she was in a good mood when she left the fields to go home and reassured them, “Don’t worry, I won’t die over it.” When she arrived home her husband had already gone out to get a shower. She washed the clothes, prepared food for her son, and then took 400 milliliters of insecticide (a very large dose). Immediately after she took it, however, she told her son to run and get his father because she had taken poison. She was rushed to the local clinic where she was only given intravenous fluids. She was transferred to the county hospital the next day and died three days later. She had no previous suicide attempts and no history of depressive

symptoms, but she knew four women in the village (total population of 600) who had committed suicide by drinking poison within the last 18 months. She had previously talked about these suicides with her husband, stating, "If you take an overdose, make sure to take enough."

COMMENT. The immediate regret Mrs. Tai experienced after drinking the insecticide and her failure to receive effective treatment suggest that at least some of the successful suicides in the Chinese countryside would be reclassified as suicide attempts if the available methods were less lethal or if the available treatments were more effective. The impulsive nature of this suicide in the absence of diagnosable mental illness (the authors personally interviewed the family and friends of the deceased) points to an underlying theme in many of the suicides we have investigated: dissatisfaction with one's current status, even though one's material and social environment is relatively good. We hypothesize that the economic reforms have not only increased the gap between the rich and poor but have also resulted in an increased awareness of the differences between the material and social conditions in urban and rural China (largely due to the widespread availability of televisions in much of the countryside).

DISCUSSION

A Multi-Factor Model of Suicide

Single-cause models of suicide, which consider either socioeconomic factors *or* mental illness the primary cause of suicide, do not allow for the possibility that these factors coexist and interact to produce suicidal behavior. In some cases of suicide, mental illness exists in the absence of significant social stressors and in other cases social stressors exist in the absence of diagnosable mental illness, but in most suicides both factors are present. The arbitrary allocation of the cause of these suicides to "mental illness" or "major life event" (depending on the perspective of the analyst) will not advance our understanding of suicide or our ability to prevent suicide.

Our own model of suicide, which has been developed based on our study of suicide in China, includes five interacting factors that collectively determine the suicide rates in a community: (1) cultural beliefs in the after-life and the acceptability of "rational suicide" as a solution for a variety of social problems; (2) the prevalence of social problems that place individuals in morally ambiguous or socially constrained circumstances; (3) the prevalence of psychological problems such as depression and substance abuse that limit individuals' ability to adapt to stressful circumstances; (4) the availability of convenient and effective methods of suicide; and

(5) the availability and comprehensiveness of suicide prevention services. Figure 5 provides an outline of our model that shows how these factors interact at the community, local and individual levels. We believe that these five factors play a role in all suicides, but the relative importance of the factors varies in each individual case. Similarly, the relative importance of these factors as determinants of suicide rates varies across risk groups (e.g., females versus males, elderly versus middle aged, married versus unmarried, etc.), between different communities (e.g., urban versus rural, China versus the West, etc.) and within risk groups or communities over time.

Suicide and Social Change in China

Data from several sources confirm that China has relatively high suicide rates (though there is some controversy about exactly how high the rates are), that the rate in females is higher than that in males and that the rate in the countryside is much higher than that in urban areas. Given the striking differences in the magnitude and pattern of suicide in China compared to other countries, there must be unique characteristics of the environment in China that produce these differences. That is, the relative importance or the prevalence of the five hypothesized determinants of suicide must be different in China.

The case histories presented are drawn from the reports of suicides in papers and magazines and from our limited case series, so they can not be considered representative of all suicides in the country. Moreover, newspaper reports rarely provide sufficient detail to confirm or disprove the existence of a mental disorder in the deceased, so it is impossible to know how many of these suicide victims had depression, alcohol problems, or other psychiatric disorders prior to their deaths. The reports do, however, support the view that the social changes occurring with the economic reforms produce stressors that may, in some circumstances, lead to suicide.

Based on this limited data, we believe that socioeconomic factors are the dominant element in most suicides occurring in China at present. Some form of mental illness is present in many cases of suicide, but in most of these cases the mental disorder has clearly been precipitated by a major psychosocial stressor. Once suicidal behavior occurs, the outcome (death or survival) depends on the lethality of the method and on the availability of effective intervention services. The wide distribution of potent insecticides and the lack of rapid and effective treatment of suicide attempts are major causes of suicide deaths in the Chinese countryside.¹⁸

The social and psychological problems that accompany economic reform, the wide availability of lethal methods and the lack of suicide

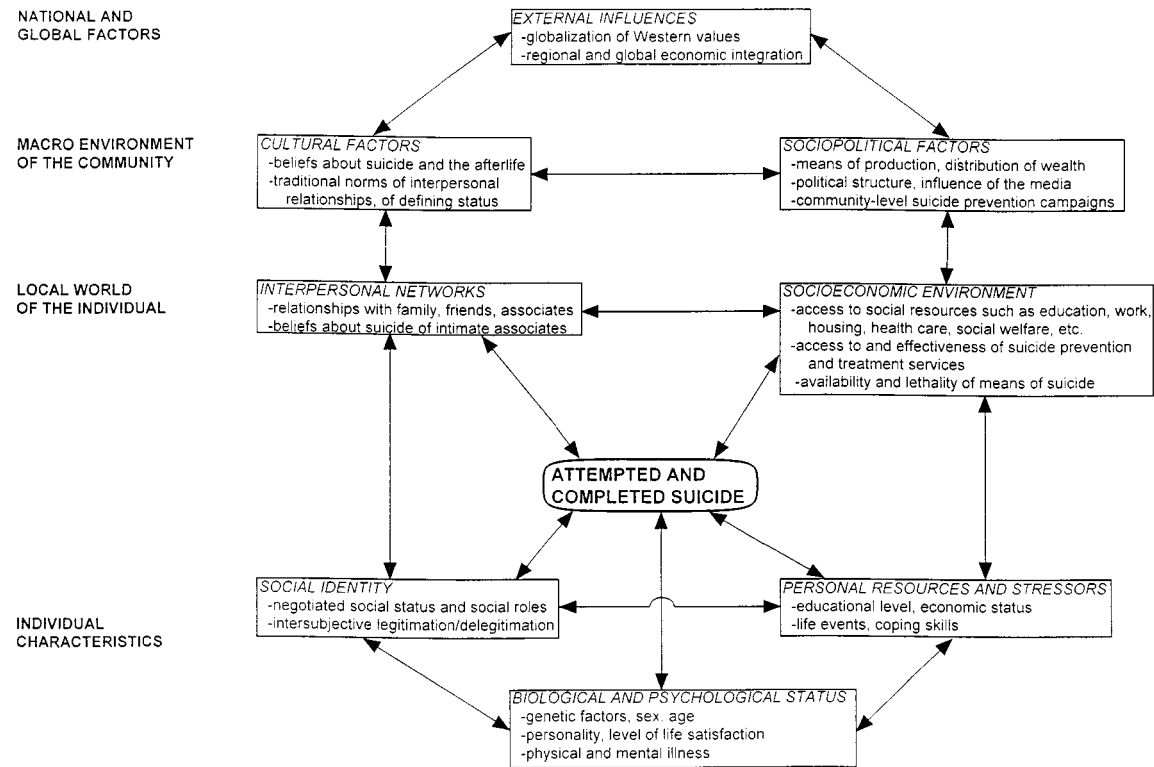


Figure 5. Multi-factor model of suicide.

prevention services are not unique to China, so they do not necessarily explain China's relatively high suicide rates. (If, however, it could be demonstrated that these problems are more prevalent in China than elsewhere, then they could explain China's relatively high rates.) Nor does the existence of these problems prove that the economic reforms have resulted in increasing rates of suicide. As stated above, even though the socio-economic changes brought about by the economic reforms may be the primary causes of suicide at present, other social problems in earlier eras of China's modern history (e.g., extreme poverty, famine, political unrest, etc.) may also have resulted in high suicide rates.

A comprehensive assessment of the relative importance and prevalence of the determinants of suicide in different communities and in different risk groups in China will require several years of multidisciplinary research that addresses the following issues. (1) What are public attitudes about suicide in urban and rural China? (2) Do the rates of successful suicide vary in communities in which the availability of lethal methods and of preventive and treatment services vary? (3) What are the patterns of life events in persons who do and do not commit suicide? (4) What proportion of persons who commit suicide and attempt suicide have diagnosable mental illnesses at the time and how many of those were receiving treatment for their problem?

ACKNOWLEDGMENTS

The work presented in this paper was supported by the Ford Foundation, Befrienders International and the Save the Children Fund.

NOTES

1. Regional studies in India find higher rates in women than in men (Desjarlais et al. 1995), and studies of 15- to 19-year-old adolescents in Singapore and Thailand find higher rates in girls than boys (Chan 1993).
2. In 1990 the total sample for the MOH mortality statistics (WHO 1994) included 57.6 percent urban residents but only 26.4 per cent of China's total population was urban (Chinese Bureau of Statistics 1996). Moreover, the rural areas selected were those with better health recording procedures – areas likely to have better health services than other rural areas.
3. The re-assignment of a proportion of "accidental death, cause unknown" and "other violent deaths" to suicide seems appropriate, but a closer look at the DSP data indicates that many of these cases should have been coded as "death of unknown cause," not reassigned to suicide. The DSP system had just been reorganized in 1990, so there were a disproportionate number of deaths for which no cause was coded; many of these

were incorrectly re-coded as “accidental death cause unknown.” This resulted in an overestimate of the number of suicide deaths in the GBD study, though the magnitude of the overestimation will remain unclear until the thousands of death registration cards for 1990 are reviewed and re-entered.

4. There could also be an over-estimation of suicides if murders were classified as suicides, but this is not likely to be a major problem in China.
5. Prior to projecting the DSP suicide rates to the entire population, the number of suicides reported by the DSP sites have been adjusted upwards by two factors. (1) A proportion of the accidental deaths for which no cause is identified are attributed to suicide; the proportion used for each age-sex-region subgroup is the proportion of suicides among all accidental deaths for which the cause is known. (2) The number of suicides is increased by the estimated proportion of uncounted deaths in each age-sex-region subgroup; this proportion is estimated by comparing the total death rates for each subgroup in the DSP sites to the total death rates estimated in the GBD study (Murray and Lopez 1996a).
6. The DALY is a new measure of the “burden of disease” resulting from a condition that was developed as part of the GBD study (Murray 1994). This measure is increasingly popular among health planners because (unlike mortality and morbidity statistics) it combines the health burden imposed by premature death and disability, thus making it possible to compare the relative “importance” of different conditions on the overall health of the community.
7. This difference between rates of suicide and rates of DALYs lost occurs because the DALY measure assesses the burden of disease due to premature death based on the life expectancy at the time of death, so deaths at younger ages result in more DALYs lost than deaths at older ages.
8. The Confucian *Analects* view specific types of suicides as a method of approximating ideal behavior in the political world (for men) or in the ethical world (for women) (Hsieh and Spence 1980). Given the emphasis on moral cultivation in traditional Chinese culture and the importance of moral achievement in determining social status, those who followed these teachings often feel impelled to extreme behavior. The dynastic histories and biographies are replete with examples of “moral” suicide (Lin n.d.). In these “cultural models” of suicide (most focus on the higher classes), the objective of the suicide is to follow someone in death, fulfill virtue, establish eternal fame, preserve moral integrity, redeem oneself from disgrace, or pressure survivors to pursue a better line of conduct. From the Confucian perspective these suicides were considered “rational” because they restored the balance of rights and duties that is essential for civilization to progress. Indeed, during the Ming and Qing dynasties certain types of suicide (such as following a husband in death rather than remarrying) were encouraged and praised by the state.
9. There are, however, two factors that could confound the relationship between the prevalence of mental disorders and suicide. (1) Different rates of treatment could result in different suicide rates even when the baseline prevalence is similar. (2) Cross-cultural comparison of the rates of mental disorders may not be sensitive to cross-cultural differences in the relationship of affective states to the development of suicidal behavior. Comparison of Chinese versus Western psychiatric patients with suicidal ideation (Chiles et al. 1989) found that depression is the most important determinant of the degree of suicidal intent in Chinese patients, while the level of hopelessness (not depression) is a stronger determinant of suicidal intent in matched Western patients.

10. At the time of the study (1982) neurasthenia was the most common psychiatric diagnosis in China (1.4% in the 6,574 persons over the age of 15 included in the nationwide sample). Kleinman (1982) found that many persons with such a diagnosis would be diagnosed as 'major depression' using American (DSM-III) criteria.
11. The leaders of the Chinese Psychiatric Association disagreed with this figure (saying that the actual proportion of persons with affective disorders treated was higher) during the Second National Meeting on Affective Disorders held in Suzhou in April 1997 (Hao 1997).
12. This emphasis on the external causes of suicide was particularly evident during the Ming and Qing dynasties when it was assumed that there was always someone responsible for a suicide. A number of statutes specified the penalties for pressuring someone into suicide because of marriage problems, land disputes, or debts (Hsieh and Spence 1980).
13. Reported in "Nong Jia Nu" ('Rural Women Knowing All') in August 1996. This monthly journal, which is published by the All China Women's Federation, is the most widely read publication by rural women. The authors of this paper provide commentaries on the reports of suicide cases which appear each month in the journal.
14. Reported in "Nong Jia Nu" ('Rural Women Knowing All') in September 1996.
15. Case collected by the authors.
16. Reported in "Gou Wu Dao Bao" ('Marketplace'), 5 February 1996.
17. Reported in "Nong Jia Nu" ('Rural Women Knowing All'), in October 1996.
18. Preliminary results from our pilot study in the Chinese countryside found that several of the identified suicides were impulsive acts that the individual immediately regretted (see Case 6). In the West many of these patients would have been saved by rapid intervention in a hospital emergency room, but in China the lack of effective intervention at the local rural clinic results in many 'unnecessary' deaths. This may be one explanation for the difference in the male versus female suicide rates between China and the West. In the West there is a much higher rate of suicide attempts in women than in men; if a large proportion of these attempts employed a more lethal method and failed to receive rapid medical intervention, the relative rate of suicide in females would increase and the male:female ratio of suicide rates would drop.

REFERENCES

- Chan, T.S.
 1993 Suicide among Children and Adolescents in Hong Kong. *Journal of the Hong Kong College of Psychiatrists* 3: 19–27.
- Cheng, T.A.
 1995 Mental Illness and Suicide: A Case-control Study in Taiwan. *Archives of General Psychiatry* 52: 594–603.
- Chiles, J.A., D.S. Kirk, Y.P. Zheng, M.C. Michael, K. Hall, R. Jemelka, B. Senn and C. Reto
 1989 Depression, Hopelessness and Suicidal Behavior in Chinese and American Psychiatric Patients. *American Journal of Psychiatry* 146: 339–344.
- Chinese Academy of Preventive Medicine
 1992 1990 Annual Report on Chinese Disease Surveillance. Beijing: Hua Xia Publishing House (in Chinese).

- 1993 1991 Annual Report on Chinese Disease Surveillance. Beijing: Hua Xia Publishing House (in Chinese).
- 1994 1992 Annual Report on Chinese Disease Surveillance. Beijing: Hua Xia Publishing House (in Chinese).
- 1995 1993 Annual Report on Chinese Disease Surveillance. Beijing: Hua Xia Publishing House (in Chinese).
- 1996 1994 Annual Report on Chinese Disease Surveillance. Beijing: Hua Xia Publishing House (in Chinese).
- Chinese Bureau of Statistics
- 1992 China Population Statistics Yearbook 1992. Beijing: China Statistics Publication Office (in Chinese).
- 1995 China Population Statistics Yearbook 1995. Beijing: China Statistics Publication Office (in Chinese).
- 1996 China Population Statistics Yearbook 1996. Beijing: China Statistics Publication Office (in Chinese).
- Chinese Medical Association and Nanjing Medical University
- 1995 Chinese Classification of Mental Disorders, second edition, revised (CCMD-2-R). Nanjing: Dong Nan University Press (in Chinese).
- Chong, M.Y. and T.A. Cheng
- 1995 Suicidal Behavior Observed in Taiwan: Trends over Four Decades. In: Tsung-Yi Lin, Wen-Shing Tseng and En-Kung Yeh, eds., *Chinese Societies and Mental Health*. Hong Kong: Oxford University Press, 209–218.
- Desjarlais, R., L. Eisenberg, B. Good and A. Kleinman
- 1995 *World Mental Health*, 68-86. New York: Oxford University Press.
- Hao, R.Y.
- 1997 Look out: Affective Diseases on the Increase. *Health Daily*, p. 1, 4 May.
- Hsieh, A.C.K. and J.D. Spence
- 1980 Suicide and the Family in Pre-modern Chinese Society. In: Arthur Kleinman and Tseng Yi Lin, eds., *Normal and Abnormal Behavior in Chinese Cultures*. Dordrecht, Holland: D. Reidel, 29–47.
- Ikels, C.
- 1983 *Aging and Adaptation: Chinese in Hong Kong and the United States*. Hamden, Conn.: Archon Books.
- Kleinman, A.
- 1982 Neurasthenia and Depression: A Study of Somatization and Culture in China. *Culture, Medicine and Psychiatry* 6: 117–190.
- Kwan, D.
- 1996 Law Bans Neglect of Pensioners. *South China Morning Post*, p. 10, 31 August.
- Lin, Y.H.
- 1990 *The Weight of Mount T'ai: Patterns of Suicide in Traditional Chinese History and Culture*. Ph.D. Thesis, The University of Wisconsin, Madison.
- Madsen, R.
- 1984 *Morality and Power in a Chinese Village*. Berkeley: University of California Press.
- Marecek, J.
- 1994 Focus on Suicide: Explanations for the Responses to Suicidal Behavior in Sri Lanka. In: *Distress, Despair, and Suicide in a Confused World*. London: Befrienders International, 87–97.

- 1989 Psychological Approaches to Understanding Suicide. In: Padmasiri De Silva, ed., *Suicide in Sri Lanka*. Colombo, Sri Lanka: Redd Barna, 16–24.
- Mosher, S.W.
1983 *Broken Earth*. New York: The Free Press.
- Murray, C.J.L.
1994 Quantifying the Burden of Disease: The Technical Basis for Disability-Adjusted Life Years. *Bulletin of the World Health Organization* 72: 429–445.
- Murray, C.J.L. and A.D. Lopez
1996a *Global Health Statistics*. Cambridge: Harvard University Press.
1996b *The Global Burden of Disease*. Cambridge: Harvard University Press.
- Pearson, V.
1995 Goods on Which One Loses: Women and Mental Health in China. *Social Science and Medicine* 41: 1159–1173.
- Phillips, M.R.
1997 Economic Reforms and the Acute Inpatient Care of Schizophrenia: The Chinese Experience. *American Journal of Psychiatry* 154: 1228–1234.
1998 The Transformation of China's Mental Health Services. *The China Journal* 39: 1–36.
- Shen, Y.C., W. Zhang, Y. Wang et al.
1992 Epidemiological Survey of Alcohol Dependence in Populations of Four Occupations in Nine Cities in China. *Chinese Mental Health Journal* 6(3): 112–115 (in Chinese).
- Silva, K.T. and W.D.N.R. Pushpakumara
n.d. Poverty, Love and Powerlessness in Female Suicides in Sri Lanka. Unpublished manuscript, University of Peradeniya, Peradeniya, Sri Lanka.
- Tsoi, W.F. and L.P. Kok
1995 Mental Disorders in Singapore. In: Tsung-Yi Lin, Wen-Shing Tseng and En-Kung Yeh, eds., *Chinese Societies and Mental Health*. Hong Kong: Oxford University Press, 267–278.
- Whyte, M.K. and W.L. Parish
1984 *Urban Life in Contemporary China*. Chicago: University of Chicago Press.
- Wolf, M.
1975 Women and Suicide in China. In: M. Wolf and R. Witke, eds., *Women in Chinese Society*. Stanford, CA: Stanford University Press.
- World Health Organization
1989 *World Health Statistics Annual 1989*, 364–375. Geneva: WHO.
1991 *World Health Statistics Annual 1990*, 346–368. Geneva: WHO.
1994 *World Health Statistics Annual 1993*, 356–361. Geneva: WHO.
- World Bank
1993 *World Development Report 1993: Investing in Health*. Oxford: Oxford University Press.
- Zhao, X.H. and D. Lester
1997 The Gender Difference in Chinese Suicide Rates. *Archives of Suicide Research* 3: 81–89.

*Beijing Hui Long Guan Hospital,
Beijing, P.R.C.*