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Original Paper

30 Years longitudinal follow-up study of mental health status in Jinuo Nationality in China: A case of the development and challenge of transcultural psychiatry in China

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Abstract. *Since 1978 Chinese society has experienced rapid and dramatic socio-economic development, especially apparent in rapid technical modernization and urbanization. All Chinese people, those of the Han majority population as well as those of the 55 ethnic nationalities in China, have been directly and indirectly impacted by these changes. However, rapid development and social change have generated new problems of acculturative stress and social isolation in large cities to which many millions have migrated from rural communities.*

From the perspective of transcultural psychiatry, both the economic and the sociocultural changes of the past thirty years have caused large numbers of people to feel disconnected from their previous lives and norms of behavior; leading to an increased prevalence of psychiatric symptoms and disorders, including increased incidence of alcohol and drug-related disorders, major depressive disorder, anxiety disorders and rising rates of suicide in rural communities such as shown in Jinuo Nationality over the past 30 years longitudinal follow-up study, as well as in urban populations.

The resilience of ethnic minority populations in coping with and adapting to these massive changes has not been subject to detailed study, and it is a new task for current transcultural psychiatry research in China to explore those psychosocial mechanisms that both help and hinder the adaptation of specific ethnic groups faced with the rapid and intense changes of the past three decades.

Keywords: Mental Health status, follow-up study, Jinuo, ethnic minority, China.

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INTRODUCTION

From 1978 Chinese society began the rapid and sharp development, especially the Modernization and Urbanization. During the course, every nationality and each person would be influenced. However, the development is a new task for the whole country; therefore there is no any former experience which could be used for reference. Further we are lack of the longitudinal study to show the effect of rapid development on mental health field in China.

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Jinuo nationality is one of the unique minorities in Yunnan Province, and is the last ethnic group recognized by Chinese Central government in 1979. Now there are nearly 12,000 Jinuo people, and they almost live in Jinuo Mountain in Xishuanbanna in Yunnan Province. Before 1970's Jinuo people had lived poorly in an isolated agricultural society. With the help of Chinese's government after that, Jinuo society move directly from low levels of productivity with quite poor implements of cultivation and at the mercy of ruthless natural forces to the much richer life. During these developments, Modernization and Urbanization gradually affect the local peoples' life. Modern way of life, culture, education and other factors integrate in the Jinuo society.

Except wealth, what will these changes bring the Jinuo people related to mental health, that is our interest? The changes that we observe in Jinuo people will show us the existing status.

A longitudinal study was carried out from 1979 to follow up the mental health problem, since then the research team returns to Jinuo Mountain every 10 years (Wan, Yu, Yang, et al, 1981; Wan, Yu, Yang, et al, 1982; Li, Zhu, Wan, 1994; Zhu, Li, Wan, 1994; Li, Wan, Zhao, et al, 2008). This paper will show the three decades follow-up results. Because of the length limitation, we would focus on the outstanding issues we found in the Jinuo society, especially the results of 2009.

SUBJECTS

The Jinuo people all live in Jinuo Mountain, which consists of 46 scattered villages. Every 10 years we explored these villages by the way of random cluster sampling. According to the local official census data, in 1979 the total subjects were 1432 families, 8682 persons (male: 4303, female: 4379). In 1989 the total subjects were 2105 families, 10403 persons (male: 5372, female: 5031). In 1999 the total subjects were 2310 families, 10398 persons (male: 5485, female: 4913). In 2009 the total subjects were 2578 families, 10610 persons (male: 5634, female: 4976).

METHODS

Instruments

Socio-demographic Information

It evaluates a number of socio-demographic variables (e.g. gender, age, ethnicity, education level, occupational status, marital status, average annual income in the last year).

The 12-item General Health Questionnair-12 (GHQ-12)

It was developed for using as a screening tool to determine psychiatric disorder in community samples and occupational settings involving large numbers of people. In this study we used the validated Chinese version of GHQ (Golderberg, Williams, 1988; Yang, Huang, Wu, 2003).

Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I-P)

The study employed DSM-IV criteria for current (1-month) and lifetime prevalence for mental disorders (First, Spitzer, Gibbon, Williams, 2002; American Psychiatric Association, 1994).

The Clinical Global Impressions Scale (CGI)

The CGI was developed for using in clinical trials to provide a brief, stand-alone assessment of the clinician's view of the patient's global functioning (Guy, 1976). It provides an overall clinician-determined summary that takes into account all available information, including knowledge of the patient's history, psychosocial circumstances, symptoms, behaviour, and the impact of the symptoms on the patient's ability to function. In this study, we used the CGI-S and CGI-I to evaluate the function of patients. In the seven-point scale of CGI-S, 1 score was rated as normal. In the follow up part, that is mean of remission.

The Alcohol Use Disorders Identification Test (AUDIT)

AUDIT is a 10-item alcohol-screening questionnaire that was specifically designed to avoid cultural bias. The instrument was already validated and used in Jinuo alcohol research. (Saunders, Aasland, Babor, de la Fuente, Grant, 1993; National Institute on Alcohol Abuse and Alcoholism, 2005; Li, Shen, Zhang, Zheng, Wang, 2003; Guo, Xu, Zhao, Zeng, Wan, Zhu, 2005).

Sampling, screening and follow-up

The research in 1979 was the first survey, so we screened the patients. After that, each survey included two parts, following up the old patients and screening the new patients. Randomized cluster sampling methods were used to identify subjects. In each household all the male and female Jinuo adults beyond 18 years of age who resides in the villages for at least one year and in the year previous to the interview were identified, 1 was selected as the target subject using a random numbers table. In the surveys carried out in 1979, 1989 and 1999, more than 15% residents in each village were randomly selected (Wan, Yu, Yang, et al. 1981; Wan, Yu, Yang, et al, 1982; Li, Zhu, Wan, 1994; Zhu, Li, Wan, 1994; Li, Wan, Zhao, et al, 2008). In 2009, 1984 subjects were recruited, accounted for 19% of total population. Among the sample of 2009 survey, 1047 (53%) were male and 937 (47%) were female, and the mean age was 39.84 ± 15.61 years. The mean educational duration was 6.02 ± 3.41 years.

All respondents were classified into three risk strata for mental illness. Those included in the high-risk stratum had a GHQ score of at least 4 (on a 0–12 point scale), or could not complete the screening process because of psychological problems. Individuals with moderate risk had no risk factors and had a GHQ score of 1–3. Those with low risk had no risk factors and had a GHQ score of 0.

All high-risk individuals, a random selection of those at 10% of moderate and 4% of low risk were assigned to complete the face-to-face diagnostic assessment with the Chinese translation of the Structured Clinical Interview for Diagnostic and Statistical Manual (DSM)-IV-TR axis 1 disorders (SCID-I-P), which has been shown to be reliable and valid in China (Zhou, Zhang, Peng, Lie, Zhu, 1997). This interview (administered by psychiatrists in this study) includes all common diagnoses in DSM-IV. Multiple current (1 month) and lifetime diagnoses ranked according to clinical importance can be recorded in this interview.

In 2009, patients with DSM-IV axis I diagnosis identified by previous surveys were followed up and the prognosis were evaluated. The following up rate in 2009 was 80.4%.

Survey process

The studies went smoothly with the help of local health Bureau and village committees. During these surveys, the local doctors from the hospital and villages assisted us in the communication with subjects. And the local hospital provided the patients clues for all villages.

In each survey, all interviewers were trained by the same researchers for 3 weeks. Diagnostic inter-rater agreement was 0.79 in 2009 survey.

During these studies, interviewers were divided into 3 groups of 2 to 4 interviewers. An experienced psychiatrist supervised each group. All questions were orally. Interviewers mainly spoke Mandarin during interview, which was adequate in half of cases. In the situation when communication was difficult, local guide persons or local doctors provided the translation between Mandarin and local dialect. We hired 1 or 2 local guide person(s) for each group of interviewers to assist accessing a household. The Ethics Committee of Yunnan Institute for Drug Abuse, Yunnan Province, China, approved this study. Oral informed consent was obtained before the interviews.

Statistical Methods

We first described sample characteristics and prevalence estimates for mental diseases. Chi-square tests were used to compare prevalence rates among 30 years. Statistical significance was based on two-tailed tests evaluated at the 0.05 level of significance. All calculations were carried out using the SPSS 15.0

RESULTS

1. Prevalence and prognosis of schizophrenia, mental retardation, major depressive disorder and bipolar disorder in the three decades

The prevalence and prognosis of schizophrenia, mental retardation, major depressive disorder, and bipolar disorder were showed in table 1. For major depressive disorder, there were significant differences between prevalence of 1999 and 2009, suggested a rising trend not only in current prevalence, but also in life time prevalence.

Table 1 Prevalence and prognosis of schizophrenia, mental retardation, major depressive disorder, bipolar disorder

	1979	1989	1999	2009	X^2	P
SCHIZOPHRENIA						
Life time Prevalence(‰)	4.03	3.85	3.96	4.05	0.070	0.995
Current Prevalence(‰)	2.42	2.40	2.91	3.11	0.985	0.805
Prognosis (%)						
Death		29.03	24.69	18.87		
Deteriorated or residual		58.06	60.16	62.26		
Remission		12.90	12.90	18.87		
MENTAL RETARDATION						
Life time Prevalence(‰)	1.84	2.98	3.18	2.92	3.571	0.312
Current Prevalence(‰)	1.84	2.98	3.18	2.92	3.571	0.312
Prognosis (%)						
Death		34.96	30.58	20.17		
Deteriorated or residual		65.04	69.42	79.83		
MAJOR DEPRESSIVE DISORDER						
Life time Prevalence(%)			0.5	4.03	197.085	<0.000
Current Prevalence(%)			0.15	3.63	285.138	<0.000
Prognosis (%)						
Death						
Deteriorated or residual				67.0		
Remission				33.0		
BIPOLAR DISORDER						
Life time Prevalence(‰)				0.5		
Current Prevalence(‰)				0.5		

2. Alcohol related disorders in the three decades

The alcohol related disorders in the 30 years changed suddenly, shown in table 2.

Table 2 Alcohol related disorders in the three decades

	1979*	1989	2002	2009	X^2	P
Per capita alcohol consumption (Equivalent amount of pure alcohol)		40-80 g	(15±5)kg	10.09 kg		
Current Prevalence of Alcohol abuse		6.97%	9.1%	13.32%	763.803	<0.000
Current Prevalence of Alcohol dependence		0.67‰	17.9%	15.93%	1279.751	<0.000
Current Prevalence of Psychotic disorder due to alcohol			2.4%	3.39%	0.919	0.338
Current Prevalence of Korsakov's psychosis			0.3%	4.83%	27.391	<0.000
Drinking varieties		White spirit	White spirit	Age <35 years: Beer Age≥35 years: White spirit		

*: Drinking only festival celebrations

Except psychotic disorder due to alcohol, there were significant differences in three decades for alcohol abuse, dependence and Korsakov's psychosis.

3. Suicide incidence in the three decades

Before 1979, there were totally 19 persons died of commit suicide. But in the three decades, the suicide incidence changed rapidly. From table 3, the annual suicide incidence of Jinuo people rose up at least three times in 2009 compared to that of 1989 ($\chi 2$=11.308, P<0.005).

Table 3 Suicide incidence in the three decades

	-BEFORE 1979*	1989	1999	2009
Suicide incidence (per year,/100 000)		9.61	23.75	30.16

*: Before 1979, 19 persons suicide death totally

COMMENT

Jinuo people are a unique ethnic group in Yunnan Province, and among the nationalitys with the least population in China. They have seldom intermarriage with other ethnic groups historically. According to the data from our survey, 510 Jinuo persons had married from 1999 to 2009, but less than 10% of them intermarried with other ethnic groups. Therefore the Jinuo people can keep relevantly original life style and habit. On the other hand, the course of modernization and urbanization have already penetrated into and enriched their life. Following up the changes of mental health status of local people could contribute a lot to a better understanding that how developments affect a society. As we know, this is the first paper to show the thirty years' longitudinal study to follow up the mental status of an ethnic group since economic reform era from 1979 in China.

In our perspective study, the current prevalence of schizophrenia of Jinuo People changed from 2.42‰ to 3.11‰, and the lifetime prevalence was 4.05‰ which was closed to that of 1979. The prevalence of mental retardation had the similar results. Even the prevalence of schizophrenia and mental retardation increased little in 2009, but it was still lower than that in Han people in other provinces and cities in China when using the same screening and diagnosis tools, such as Hebei Province (Cui, Li, Cui, et al, 2007). When people with a particular characteristic live in an area where this characteristic is less common, it was often observed the higher rate of mental illness (Wechsler, Pugh, 1967). Boydell et al examined this with regard to ethnicity and found incidence rates of schizophrenia to increase in ethnic minority groups as the proportion of ethnic minorities in the locality fell; this association had already been replicated (Boydell, Van, McKenzie, et al, 2001; Veling, Selten, Van, Hoek, Mackenbach, 2006). However, in Jinuo ethnic group we did not find the phenomenon. One of the reasons between the differences might be the complexity in genetic etiology of schizophrenia, which some positive susceptible genes could not be replicated in another ethnic group, like the Tryptophan Hydroxylase 2 gene (TPH2). In one of our research, the association of the polymorphisms in TPH2 gene with schizophrenia between Jinuo and Han nationalities was different (Chen, Zeng, Xu, et al, 2009).

Though the prevalence of schizophrenia was no higher than other ethnic groups, however, as one of severe mental disorders, the prognosis of schizophrenia in Jinuo people was not so optimistic. From 1989-2009, even though the remission rate increased from 12.90% to 18.87%, there were still 62.26% patients who had deteriorated or residual symptoms. In the survey, only14.6 % of schizophrenia patients received antipsychotics. The huge treatment gap might be one of the major reasons which accounted for the bad prognosis. The found in Jinuo people supported the notion that never-treated patients are more likely to have longer duration of illness, more marked symptoms than treated individuals in rural China (Ran, Lai-Wan, Yu-Hai, et al, 2009). Some researchers had ever suggested that there was a better prognosis for individuals with schizophrenia in low- and middle income countries (Leff, Sartorius, Jablensky, Korten, Ernberg, 1992), but our study showed another contrary prognosis, indicated that in the region of low economic development, mental health services are less available, so it is needed to provide the knowledge of psychopathology to public, improve the ability to identify the nature of the illness, pay more attention to the diagnosis, treatment, outcomes of schizophrenia.

The Chinese National Bureau of Statistics data showed that alcohol production and consumption in China has increased rapidly since the start of the economic reform era in 1978 (National Bureau of Statistics of China, 1979; National Bureau of Statistics of China, 2007). Several national and regional epidemiological studies over the past three decades have reported corresponding increase in the prevalence of alcohol use disorders. (Collaborating Research Group on Alcoholism and Related Problems, 1992; Zhang, Casswell, Cai, 2008). In the longitudinal survey, the most obvious problem was alcohol related disorders, indicated the rising trend of alcohol use disorders. Before 1979, the local people lived a very poor life, lack of food, cloth and house, so drinking only could be seen in festival celebration. After 10 years, the prevalence of alcohol abuse and dependence were higher than other cities in China (Li, Zhu, Wan, 1994). In 1999, these problems of alcohol abuse, alcohol dependence, psychotic disorder and Korsakov's psychosis already became much serious (Guo, Xu, Zhao, Zeng, Wan, Zhu, 2005). In 30th years follow up, except the alcohol dependence decreased a little, alcohol consumption and other disorders due to alcohol still increased with years going by. In addition, those persons who were diagnosed as alcohol dependence or chronic alcoholism before 1999 now gradually became disability, confronted with various family problems, contradictions and conflicts, or even died from the physical conditions like alcoholic liver disease in the last 10 years. Because of these impairment, we found that most of young adults prefer to beer in 2009, however, these youth did not think that it is the same harmful for them if they drink beer too much.

Another important found was commit suicide. In the local dialect, the word "Jinuo" means that the local people lived a simple and comfortable life. In history, totally 19 persons committed suicide before 1979. However, in the 10th year's follow up, the annual incidence of commit suicide was 9.61/100,000. In the 30th year's survey, the annual incidence increased to 30.16/100,000, which was higher than the annual suicide national level (Phillips, Li, Zhang, 2002), showed the rapid rising trend. Among the reasons of suicide, bad family relationships accounted for 46.9%, including spous or parent-child relationship. Another 12.5% was due to persistent chronic physical diseases. 0.9% suicide persons were alcoholism. These findings supported the hypothesis that acute stress and triggering life events play an important role in rural commit suicide which often was impulsive actions in rural China (Phillips, Yang, Zhang, Wang, Ji, Zhou, 2002).

In 1999, the current prevalence of major depressive disorder was 0.5%. After 10 years, it increased to 3.63%, though it was still lower than the prevalence (6.1%) found in four provinces of China (Phillips, Zhang, Shi, et al, 2009). In this community, because the local clinicians could not recognize the disease, no any patient of the major depressive disorder received the antidepressants. In an urban province in China, Shenyang, in outpatient internal medicine departments from 23 randomly selected general hospitals, only 3.0% patients were provided with antidepressant medication (Qin, Wang, Jin, et al, 2008). Because of the very low rates of recognition and treatment, the naturalistic outcomes of this disorder in Jinuo people were also very poor, still had 67% of patients suffering from the condition. Therefore to some extent, increasing the recognition and treatment of depression in Chinese, especially in rural villages will require great endeavor.

In summary, the Jinuo people lived a simple and pleasant life before 1979. After three decades, their economic, cultural and healthy levels have already remarkably improved under the help of government. The annual income per person was increased from the insufficient food and clothing in 1979 to 2600 yuan (RMB) in 2009. The local people began to live a city life. On the other hand, from the 30 years follow-up data, this minority seems to be exposed to great sociocultural changes, be faced to some stress which rapid economic development might bring up (Leff, 1981), already produced serious mental health problems. With the progress of material civilization during the modernization, up to now it is necessarily careful about the undesirable impact, and it will be helpful to introduce the resolved and preventive measures in the meanwhile, especially to explore existed protection mechanism from the ethnic group itself.

NOTES

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