

Psychiatric Epidemiology in Korea

Part I: Gender and Age Differences in Seoul

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The most dramatic finding was the very high prevalence of alcohol abuse, using DSM-III criteria, among men in Seoul, Korea. The prevalence of other psychiatric disorders was lower than in St. Louis, Missouri. With the current biological emphasis in psychiatry, questions may be raised regarding the different prevalence rates of schizophrenia, affective disorders, and even alcoholism.

The deficit of the aldehyde dehydrogenase isoenzyme 1 has been hypothesized to reduce the prevalence of alcohol abuse among Asians. Twenty-five percent of Koreans have been found to be deficient in the enzyme, but despite this their prevalence of alcohol abuse is higher than among Americans.

Cultural issues are paramount in the much lower prevalence of alcohol abuse among women in Korea.

There is a long history of psychiatric epidemiology in the Orient, but previous studies have suffered from the lack of structured diagnoses and structured interview schedules. With the publication of the third edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III) by the American Psychiatric Association (1980) and the refinement of structured interview schedules, a specific schedule was formulated—the Diagnostic Interview Schedule (DIS; Robins et al., 1981, 1982).

Version III (DIS-III) was used for this study. Our belief was that, should this schedule be appropriate for diagnoses among Koreans, a study of psychiatric epidemiology could be done in Korea, and comparisons of data could be made from the Epidemiologic Catchment Area (ECA) studies being done in the United States in St. Louis, Baltimore, New Haven, Durham, and Los Angeles (Eaton et al., 1984; Myers et al., 1984; Regier, et al., 1984; Robins et al., 1984). Comparison could also be made with colleagues in other nations (Professor Eng-Kung Yeh in Taiwan, Professor Char-Nie Chen in Hong Kong, Professor Masahisa Nishizono in Japan, Dr. Shizuo Machizawa at the Japanese NIMH, Dr. Shunichiro Hayashi with Dr. Kimpei Minobe and the staff of the NIMH of Peru [a collaborative study with Yamamoto et al., 1988]).

Despite the limitations of past epidemiological stud-

ies, it has been the assumption among most Western psychiatrists that the prevalence of major psychoses such as schizophrenia and affective disorders was substantially biologically determined and thus should be similar in prevalence from one nation to another. This present report gives us an opportunity to compare prevalence from one culture to another. In addition, because both urban and rural subjects were interviewed, there was an opportunity to compare urban and rural subjects in Korea. In this paper, only the urban rates are presented.

Before we proceed with a description of these studies and the methods used, a few warnings are advisable concerning the limitations of our present study. First, unlike the United States ECA, no interviews were done with patients or subjects in institutional settings. Thus, the findings are not strictly comparable with the U.S. ECA. In addition, the higher perceived stigma of mental illness labeling in the Orient must be taken into account, for fewer Asians with psychiatric disorders see physicians, and relatively few see mental health professionals (Yeh et al., 1987). We have no data on whether psychiatrically disordered subjects were sequestered and hidden from our interviewers. It would not be surprising if this happened in a certain percentage of cases in view of the tendency of Oriental families to try to keep their problems within the family.

Methods

Selection of Community Subjects

Because the aim of this epidemiological study was to establish basic rates of psychiatric morbidity among

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the general population of Korea, a nationwide survey was planned. However, an entirely representative sample would have been an enormous undertaking. For this reason, samples were selected from Seoul, the capital city of Korea, and from scattered rural locations over the country. Two-stage cluster sampling was used in each site (Lee, in press). The two stages were composed of primary sampling units (47 Dongs in Seoul) for the urban sample. Each Dong designates a "subdistrict" or aggregation of "blocks" with a population of some 15,000 to 30,000. Five smaller units, secondary sampling units, were drawn from each primary sampling unit by systematic random selection. Thus, in the 47 primary sampling units in Seoul, five secondary sampling units were selected, making a total of 235 secondary sampling units in Seoul. The secondary sampling units were 1/20 to 1/30 the size of the primary sampling units.

Each secondary sampling unit was further subdivided into administrative subunits with 20 to 30 households in Seoul. With these methods, 1645 households were randomly selected in Seoul.

It should be stated that from this point on the methodology was different from that used in the U.S. Epidemiologic Catchment Studies; in the United States the Kish method of selection was used to randomize by age and sex within each household so that only one adult would be interviewed within each designated household (Holzer et al., 1985). In Korea, in this study, all family members aged 18 to 65 were interviewed if they had lived more than 3 months in the selected household.

For the nationwide survey, 6200 respondents (4000 in Seoul, 2200 in rural areas) were identified as potential subjects. A total of 5176 respondents completed interviews (3178 in Seoul, 1998 in rural areas) with completion rates of 83.48% (82.26% of the interviews were actually usable). This resulted in a total of 3134 subjects in Seoul and 1966 in the rural areas (Lee, in press).

Instrument

The National Institute of Mental Health DIS-III was devised for a psychiatric epidemiological study in the United States. A first consideration was an appropriate translation/back-translation of the instrument together with evaluation by health and mental health professionals of the appropriateness of the translations for Korean subjects. A team approach was used.

A committee for the translation of the DIS was established in the Department of Neuropsychiatry at the Seoul National University. After two critical discussions of the general applicability and acceptability of

the DIS-III in Korean culture, it was decided that the translation task was feasible. Psychiatrists then made an initial draft of the translation. Following the suggestions of Brislin (1980; Brislin et al., 1973), the back-translation was completed. Then psychologists at the Pacific Asian Mental Health Research Center at the University of Illinois in Chicago joined the work for further collaboration. After the back-translation of the DIS by a bilingual psychologist in Chicago, there was an expert review of the English and Korean versions, with an item by item comparison and revision of the initial Korean translation. Soon D. Koh, Ph.D., in Chicago and Sam and Susan Chung, M.D.s, both Korean-American bilingual physicians, also compared the translation and original version to evaluate the appropriateness of the translation. A preliminary field trial was done with 30 subjects, and the final draft of the Korean DIS-III was prepared. The translation of the DIS in Korea was similar to the translation of the DIS into Spanish by Karno et al. (1983).

The validity of the Korean DIS-III was evaluated with 35 psychiatric inpatients and 30 control subjects (from the nonhospitalized general population). Comparing the clinical diagnoses and the diagnoses generated by the DIS-III, the data showed moderate sensitivity, with .69 in schizophrenia, .78 in overall affective disorders, and .80 in neurotic disorders. There was high specificity, with 1.0 in schizophrenia, .91 in overall affective disorders, and .72 in neurotic disorders.

Twenty-one inpatients were also interviewed by two trained interviewers to evaluate the test-retest reliability. There was nearly 90% agreement. Rates of specific diagnoses showed kappa values for alcohol abuse/dependence .36; tobacco dependence .80; drug abuse/dependence 1.00; schizophrenia .64; manic episode .82; major depressive episode .81; phobia 1.00; obsessive-compulsive disorder 1.00; and cognitive impairment .50.

Field Survey

There were 78 interviewers for the epidemiological study, selected from 150 applicants. All were students in medicine or other colleges of the Seoul National University who had an intensive 1-week training course on the DIS-III and were supervised by staff members.

Results

The lifetime prevalence of DSM-III disorders in Seoul, Korea, is shown in Table 1. Notable cross-cultural findings include the high prevalence of alcohol abuse/dependence using the DSM-III criteria. A correlate seems to be the low prevalence of drug abuse

TABLE 1
Lifetime Prevalence of DIS/DSM-III Disorders in Seoul

	% (N = 3134)
Any DIS disorder covered	39.81
Any DIS disorder except tobacco dependence	31.80
Any DIS disorder except substance use disorders	13.36
Substance use disorders	31.75
Alcohol abuse/dependence	21.71
Alcohol abuse	12.95
Alcohol dependence	8.76
Tobacco dependence	19.92
Drug abuse/dependence	.88
Schizophrenic/schizophreniform disorders	.34
Schizophrenia	.31
Schizophreniform disorder	.03
Affective disorders	5.52
Manic episode	.40
Major depression	3.31
Dysthymia	2.42
Anxiety disorders	9.19
Phobia (sum)	5.89
Agoraphobia	2.08
Social phobia	.53
Simple phobia	5.35
Panic disorder	1.11
Agoraphobia with panic attack	.65
Generalized anxiety disorder	3.56
Obsessive/Compulsive	2.29
Somatization disorder	.03
Anorexia	.03
Antisocial personality disorder	2.08
Gambling	1.02

and dependence. Prevalence of schizophrenia and schizophreniform disorders was low, .34%. Affective disorders prevalence was also low, 5.52%. Prevalence of anxiety and somatoform disorders was lower than in the United States but the prevalence of panic disorders and obsessive/compulsive disorders was similar. Only one case of somatization or anorexia was found in 3134 community subjects in Seoul.

We have eliminated discussion of cognitive impairment because, in the Korean study, subjects were only included through the age of 65. Those more elderly were not interviewed.

The lifetime prevalence of DSM-III disorders in Seoul by gender is compared in Table 2. Men much more often abused tobacco and alcohol. Women tended to abuse drugs somewhat more often. When the prevalence of all disorders is compared, eliminating substance use disorders, the prevalence rate of 10.53% in men was significantly lower than in women, 15.68%. Except for drug abuse and dependency, where women had a higher prevalence than men, in the category of substance use disorders the men far outnumbered the women. The original 12.95% prevalence of alcohol abuse for the general population was almost doubled when one considers that most drinking was done by men

TABLE 2
Lifetime Prevalence of DIS/DSM-III Disorders in Seoul by Gender

	%	
	Male (N = 1490)	Female (N = 1644)
Any DIS disorder covered***	63.05	18.78
Any DIS disorder except tobacco dependence***	47.51	17.60
Any DIS disorder except substance use disorders	10.53	15.68
Substance use disorders***	60.04	5.15
Alcohol abuse***	25.63	1.59
Alcohol dependence***	17.23	1.04
Tobacco dependence***	39.09	2.63
Drug abuse/dependence	.78	.97
Schizophrenic/schizophreniform disorders	.48	.24
Schizophrenia	.41	.24
Schizophreniform disorder	.07	.00
Affective disorders***	4.31	6.62
Manic episode	.56	.26
Major depression**	2.43	4.07
Dysthymia*	1.80	2.99
Anxiety disorders***	5.26	12.73
Phobia (sum)***	2.87	8.64
Agoraphobia***	.70	3.34
Social phobia***	.00	1.03
Simple phobia***	2.58	7.90
Panic disorder***	.31	1.80
Agoraphobia with panic attack***	.07	1.17
Generalized anxiety disorder	2.40	4.32
Obsessive/Compulsive	2.21	2.38
Somatization disorder	.00	.06
Anorexia	.00	.06
Antisocial personality disorder***	3.54	.78
Gambling***	1.87	.22
Cognitive impairment, mild	2.89	6.31
Cognitive impairment, severe	.05	.26

* $p < .05$; ** $p < .01$; *** $p < .001$ (χ^2 test).

(25.63% alcohol abuse prevalence among men compared with only 1.59% alcohol abuse prevalence among women).

The prevalence of schizophrenic/schizophreniform disorders was higher among men than women and the prevalence of affective disorders was higher among women than among men. All other disorders are more frequent in women than in men, except for antisocial personality disorders and gambling.

The rising prevalence of substance abuse disorders, increasing from the 18 to 24-year-old group to the 25- to 44-year-old group and at its highest in the 45- to 65-year-old group, is shown in Table 3. There was no consistent pattern of change in the prevalence of the other disorders, and schizophrenia seemed to be highest in prevalence in the older age group.

In contrast, pertaining to affective disorders, the highest prevalence was in the youngest age group, 18

TABLE 3
Lifetime Prevalence of DIS/DSM-III Disorders in Seoul by Age

	%		
	18-24 yr (N = 638)	25-44 yr (N = 1704)	45-65 yr (N = 792)
Any DIS disorder except substance use disorders	13.32	13.20	13.88
Substance use disorders***			
Alcohol abuse***	20.22	33.16	42.30
Alcohol dependence	7.37	15.20	15.15
Tobacco dependence	5.96	8.45	13.89
Drug abuse/dependence	14.58	20.42	26.64
Schizophrenic/schizophreniform disorders	.78	.70	1.52
Schizophrenia	.31	.35	.38
Schizophreniform disorder	.31	.29	.38
Affective disorders	.00	.06	.00
Manic episode	6.27	4.87	6.19
Major depression	.78	.29	.13
Dysthymia	3.76	2.99	3.54
Anxiety disorders	2.04	2.35	3.16
Phobia (sum)	9.97	9.01	8.92
Agoraphobia	6.27	5.63	6.06
Social phobia	1.57	2.11	2.78
Simple phobia	.78	.41	.51
Panic disorder	6.11	4.87	5.55
Agoraphobia with panic attack	.16	1.53	1.39
Generalized anxiety disorder	.47	.70	.76
Obsessive/compulsive disorder	2.85	3.69	4.29
Somatization disorder	2.82	2.11	2.02
Anorexia	.00	.00	.13
Antisocial personality disorder	.00	.06	.00
Gambling	2.04	2.23	1.77
Cognitive impairment, mild	.47	1.06	1.77
Cognitive impairment, severe	1.41	3.11	13.64
	.00	.12	.51

* $p < .05$; ** $p < .01$; *** $p < .001$ (χ^2 test).

to 24, and next, the oldest age group, 45 to 65. The prevalence of major depression was also highest in the 18- to 24-year-old age group, next in the 45- to 65-year-old age group, and lowest in the 25- to 44-year-old age group.

A cross-cultural comparison between the lifetime prevalence in Seoul and St. Louis showed very significant differences. There were more subjects in Korea with diagnosable disorders (Table 4). These differences were due to the higher prevalence of alcohol abuse and dependence, specifically among Korean men. There was a lower prevalence of all the other diagnostic categories.

Discussion

This is a preliminary report of the findings in an epidemiological study in Seoul, Korea. This preliminary report has focused on the methodology and the findings of the lifetime prevalence of disorders according to the DIS-III: the differences between men and women, the comparison of different age groups, and finally, a cross-cultural comparison in Seoul and St. Louis.

An intriguing question is raised by the prevalence of alcohol abuse, which is much higher than anticipated from past knowledge about Asian drinking norms. Also, contrary findings were found in reference to schizophrenia and affective disorders, for which the prevalence was lower than in St. Louis. One intriguing question has to do with the biopsychosociocultural model of human behavior. If there is a biological basis for schizophrenia, or affective disorders, or alcoholism, why are there such significantly different prevalence rates?

The estimation of the presence in Asians of the aldehyde dehydrogenase isoenzyme 1 deficit (ALDH) varies from 20% to 50% (Goedde et al., 1985). This may also add to the complexity of the situation in a Confucius-influenced society such as Korea. Because of traditional values in Korean Confucian teachings, women do not drink; it is the men who do most of the drinking and are indeed, we believe, mainly from the portion of those who are ALDH positive. Many who are ALDH negative may not drink, but cultural values that encourage heavy drinking in male social groups have dramatically increased the prevalence of alcohol abuse (Yamamoto et al., 1988).

TABLE 4
Comparison of Lifetime Prevalence: Seoul and St. Louis

	%	
	Seoul (N = 3134)	St. Louis (N = 3004)
Any DIS disorder covered***	39.81	31.0
Any DIS disorder except phobia***	31.80	26.2
Any DIS disorder except substance use disorders	13.36	18.6
Substance use disorders***	22.50	18.1
Alcohol abuse/dependence***	21.71	15.7
Drug abuse/dependence***	.88	5.5
Schizophrenic/schizophreniform disorders	.34	1.1
Schizophrenia	.31	1.0
Schizophreniform disorder	.03	.1
Affective disorders***	5.52	8.0
Manic episode***	.40	1.1
Major depression***	3.31	5.5
Dysthymia	2.42	3.8
Anxiety disorders**	9.19	11.0
Phobia (sum)**	5.89	9.4
Panic disorder	1.11	1.5
Generalized anxiety disorder	3.56	
Obsessive/compulsive disorder	2.29	1.9
Somatization disorder	.03	.1
Anorexia	.03	.1
Antisocial personality disorder	2.08	3.3
Cognitive impairment (severe)	.16	1.0

* $p < .05$; ** $p < .01$; *** $p < .001$ (χ^2 test).

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