

# Alcoholism in Peru

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*Objective:* Alcoholism is a problem of worldwide concern. Full appreciation of this international problem requires that adequate diagnostic measures be constructed and that comparable measures for different cultures be available so that valid differences in prevalence across cultures can be detected. A Spanish-language version of the Diagnostic Interview Schedule (DIS) has been used for epidemiologic studies of alcohol abuse and dependence in Los Angeles Mexican-Americans and mainland Puerto Ricans, and the authors used the same instrument to conduct a similar study in Peru. *Method:* A population sample (N=815) from the Independencia district of Lima, Peru, was chosen for interviews with a revised form of the Spanish translation of the DIS. Lifetime prevalence rates of alcoholism and other DSM-III diagnoses were determined. *Results:* The prevalence of alcohol abuse or dependence was higher among the men (34.80%) than among the women (2.46%), but the onset for women was earlier. Alcoholism was strongly associated with antisocial personality disorder and with drug abuse or dependence. *Conclusions:* The prevalence of alcoholism for the Peruvian men is higher than prevalences for men in U.S. studies, but the prevalence among the Peruvian women is one of the lowest reported. The high prevalence among men is likely due to cultural mores but may also be linked to the stresses found in impoverished societies undergoing rapid social, cultural, and economic change.

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Peru is a South American country of 1,285,000 km<sup>2</sup>, populated by approximately 22 million inhabitants living in both urban and rural settings. Like many other South American countries, Peru is the product of several centuries of interaction between the original Indian population and the Spanish culture. In recent decades urbanization has increased rapidly, brought about by internal migration from rural areas into the large urban centers. In this respect, Peru follows a demographic trend noted in other Third World countries. The trend toward urbanization has also caused corresponding changes in traditional customs and socioeconomic structure and new problems in health care and its delivery. It is generally assumed that changes brought about by migration also lead to considerable stress in individuals and to increases in psychopathology.

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One of the indicators of social disruption may be alcohol abuse and other substance abuse disorders. Therefore, knowledge of the prevalence of alcoholism in Hispanic communities may help determine more clearly the extent of this problem and its association with other sociocultural factors. A more comprehensive knowledge of the alcohol abuse problem may lead to the implementation of more rational plans for solving this serious problem.

Alcoholism has long been recognized as a public health problem in Peru (1, 2). However, the first large-scale study aimed at establishing reliable measures of the prevalence of alcoholism only began to be carried out during the last decade. Several developments in diagnostic evaluation and their application to the epidemiology of mental disorders have made this possible.

In the last decade the U.S. National Institute of Mental Health (NIMH) developed an extensive mental health and epidemiologic program aimed at collecting reliable data on the prevalence of mental disorders, which could also be used for comparative purposes across different sociocultural and socioeconomic settings (3-5). The NIMH Epidemiologic Catchment Area (ECA) program developed a structured interview, the Diagnostic Interview Schedule (DIS) (6). The structured nature of the interview and its generation of diagnoses in terms of relatively atheoretical diagnostic systems, such as DSM-III, the Feighner criteria (7), and the Re-

**TABLE 1. Relation of Sex and Age to Lifetime Prevalence of Alcohol Abuse or Dependence Among Residents of Independencia, Lima, Peru**

Age Group	Lifetime Prevalence of Alcohol Abuse or Dependence			
	Men (N=408)		Women (N=407)	
	N	%	N	%
18-24 years	25	23.15	5	4.95
25-44 years	76	38.86	4	1.83
45-64 years	34	37.36	1	1.33
≥65 years	7	43.75	0	0.00
Total	142	34.80	10	2.46

search Diagnostic Criteria (8), allow for a high degree of comparability across different populations (4, 5). The DIS was designed so that it may be reliably administered by nonclinicians as well as clinicians.

The DIS was first used in a large Hispanic population in the Los Angeles ECA study (4), and this required the development of a Spanish-language version of the DIS for its proper application in the Mexican-American population of Los Angeles (9). The original translation of the DIS into Spanish showed that, although a useful DIS in Spanish was feasible, careful linguistic and cultural considerations were necessary for its construction. Subsequent application of the DIS in another Spanish-speaking population, in Puerto Rico, has shown that the DIS needs to be carefully revised when applied to different Spanish-speaking populations (10).

The main purpose of this paper is to report the results of a study on the prevalence of alcohol abuse and dependence among the population of an urban district in Peru.

## METHOD

The study was conducted in 1983 and consisted of structured interviews of 815 persons in Independencia, a district in the northern area of Lima, Peru. The Los Angeles ECA Spanish translation of the DIS was used in a revised form, to match the Peruvian culture (11). The subjects were sampled by using a random sampling method without stratification.

The population sample included adults aged 18 and older who were residents of Independencia. The subjects were drawn by means of a three-stage sampling method that first included groups of households, then selected families or households, followed by one member of the household or family. Specific individuals within each household were chosen according to the Kish method (11). If the interviewee selected could not be found after several visits, a sibling was substituted. If the sibling was of the opposite sex, then in a subsequent household a subject of the opposite sex was sought. This deviation from the Kish method, of course, introduces some question of bias. Nonetheless, this study was done as scientifically as we could under these field circumstances.

The sample comprised 1.1% of the adult residents of the district; 830 subjects were asked to participate, and 815 agreed. Our sample of 815 included 209 subjects (25.64%) aged 18-24 years, 411 (50.43%) aged 25-44 years, 166 (20.37%) aged 45-64 years, and 29 (3.56%) aged 65 or more years. The sample was composed of 408 men and 407 women.

In 1982 the Independencia district in northern Lima was listed as having a total population of 137,722; the population of those 18 years of age or older was 74,091. It is a poor district that had experienced substantial population growth during the preceding 25 years. More than 60% of the people in Independencia had come from other

**TABLE 2. Lifetime Prevalences of Psychiatric Diagnoses Among Alcoholics and Nonalcoholics in Independencia, Lima, Peru**

Core DIS/DSM-III Diagnosis	Lifetime Prevalence						Odds Ratio
	Alcoholics (N=152)		Nonalcoholics (N=663)		Total Sample (N=815)		
	N	%	N	%	N	%	
Phobic disorder	15	9.87	54	8.14	69	8.47	1.24
Drug abuse/dependence	8	5.26	3	0.45	11	1.35	12.22
Organic brain syndromes	11	7.24	46	6.94	57	6.99	1.05
Major depression	17	11.18	47	7.09	64	7.85	1.65
Dysthymic disorder	4	2.63	25	3.77	29	3.56	0.69
Antisocial personality disorder	23	15.13	9	1.36	32	3.93	12.96
Obsessive-compulsive disorder	5	3.29	13	1.96	18	2.21	1.70
Panic disorder	2	1.32	11	1.66	13	1.60	0.79
Schizophrenia	1	0.66	7	1.06	8	0.98	0.62
Mania	0	0.00	4	0.60	4	0.49	0.00
Somatization disorder	2	1.32	3	0.45	5	0.61	2.93
Anorexia nervosa	0	0.00	0	0.00	0	0.00	1.00
Any core diagnosis	55	36.18	152	22.93	207	25.40	1.91

areas of Lima, and the rest had migrated from central Peru, mostly from the mountainous zone of the Andes. More than 90% read and wrote in Spanish. Most spoke exclusively or preferentially Spanish, and only 3% spoke the Quechua dialect (12).

## RESULTS

The lifetime prevalence of DIS/DSM-III alcohol abuse or dependence was determined by age and sex. A higher prevalence of alcohol abuse or dependence was found among men (34.80%, N=142) than among women (2.46%, N=10), consistent with previous findings in the Lima population (12). As shown in table 1, among the 129 alcoholic men, there were substantial differences in lifetime prevalence of alcohol abuse or dependence among the different age groups. Among the alcoholic women, the youngest age cohort, 18-24-year-olds, had the highest lifetime prevalence, which was three times as high as that of the 25-44-year-old group. The prevalence among women decreased with increase in age. We will comment on this difference in our discussion.

For the total population sample, the prevalence of alcohol abuse and alcohol dependence combined was 18.65% (N=152). The prevalence of alcohol abuse only was 11.04% (N=90), and for alcohol dependence only it was 6.13% (N=50). The 6-month prevalence of alcohol abuse and dependence combined was 7.12% (N=58) for the total sample.

Table 2 presents data on other DIS/DSM-III mental disorders among the alcoholics and nonalcoholics and among the total sample. The nonalcoholic group had lower lifetime prevalences of most mental disorders than the alcoholic group. An important finding is the strong association between alcoholism and personality disorder;

TABLE 3. Onset, Severity, and Course of Alcoholism in Independencia, Lima, Peru

Variable	Men			Women			Total Sample		
	N	Mean	SD	N	Mean	SD	N	Mean	SD
Age at first intoxication, if any (years)									
Total sample	371	18.71	7.82	176	22.23	6.88	547	19.84	10.21
Alcoholics	129	17.99	9.07	9	16.33	2.06	138	17.88	8.76
Nonalcoholics	231	19.19	7.20	160	22.59	6.96	391	20.58	9.89
For all alcoholics									
Age at onset of alcoholism (years)	121	24.19	7.95	9	22.89	11.34	130	24.10	8.21
Time from first intoxication to first alcoholic symptoms (years)	121	7.59	7.48	9	6.56	12.29	130	7.52	7.79
Number of lifetime symptoms	129	6.03	3.14	9	5.11	3.41	138	5.97	3.18
For alcoholics in remission <sup>a</sup>									
Age at last symptom (years)	49	33.73	11.93	5	22.60	8.82	54	32.70	22.07
Duration of alcoholism (years)	47	9.19	7.56	5	1.80	1.30	52	8.48	11.76
Number of lifetime symptoms									
Alcoholics in remission	50	5.28	2.99	5	4.00	1.87	55	5.16	2.99
Alcoholics not in remission	67	6.85	3.07	5	5.60	4.51	72	6.76	3.21

<sup>a</sup>Remission defined as no alcoholic symptoms for at least 1 year before the interview.

the prevalence of antisocial personality disorder among the alcoholic group was 12.96 times as high as the rate for the nonalcoholic group. Drug abuse and dependence was also strongly associated with alcoholism; the rate was 12.22 times as high among the alcoholics as among the nonalcoholic group. The alcoholics also showed somewhat greater risk for major depression, obsessive-compulsive disorder, and somatization disorder, which had risk ratios of 1.65, 1.70, and 2.93, respectively.

Table 3 shows the relatively young age at first intoxication among the women and men. In addition, the ages at onset of alcoholism, 24.19 years for men and 22.89 years for women, are lower than those for populations in other cultures. For example, Helzer et al. (13) studied the prevalence of alcohol abuse in St. Louis, in Edmonton, Alberta, Canada, in Puerto Rico, and in Taipei, Taiwan, and they found higher ages at alcoholism onset for men and women, except for men in St. Louis and, especially, men and women in Edmonton, where the mean age at onset was 21 for men and 22 for women.

The women in Lima were younger at the onset of alcoholism than the men. In contrast, in St. Louis, Edmonton, Puerto Rico, and Taipei, the age at onset of alcoholism was higher for women than for men (13). The mean numbers of symptoms, 6.85 in the men and 5.60 in the women in Lima, were higher than those found by Helzer et al. in St. Louis, Edmonton, Puerto Rico, and Taipei. A possible explanation for this result is that the population studied in Lima is undergoing considerable sociocultural and economic stress. It has been suggested that the low age at onset of alcoholism in Edmonton, even lower than that in Lima, is a reflection of the stresses of the frontier, boom-or-bust oil economy of Edmonton (13, 14).

## DISCUSSION

The present study showed a higher lifetime prevalence of alcohol abuse and dependence among Peruvian

men from the Independencia district of Lima than for men in the United States (3-5). This is especially true when Peruvian men are compared to non-Hispanic men. The only other group that has shown a lifetime prevalence of alcoholism comparable to that of the Peruvian sample (34.80%) is the Los Angeles Mexican-American sample (31.3%) (4). The prevalence of alcoholism among women in Independencia, Peru, is one of the lowest rates, except for that of Puerto Rican women, who have an even lower prevalence (13). All populations studied with the DIS showed a higher prevalence of alcoholism among men than among women. However, the 13.6 relative risk of developing alcoholism for men in Peru is the highest for all populations studied, and only the Puerto Rican sample had a comparable ratio (12.3).

The reason for the high lifetime prevalences of alcoholism in Peruvian and other Hispanic men is likely to be multifactorial. Probably the most important factor is culturally determined attitudes that facilitate serious drinking among men, the *machismo* factor (15). Cultural factors are also likely to account for the low lifetime prevalences of alcoholism among Peruvian, Puerto Rican, and Mexican-American women (4, 5). Stressful events may also predispose Peruvian men in Independencia to engage in heavy alcohol intake, especially if we assume that alcohol use, regardless of degree of pathological use, is either condoned or facilitated by the culture and especially by *machismo* behavior. Consideration of stressful events as mediating factors in the genesis of alcoholism among Peruvian men from Independencia may be germane if we take into account that Independencia is clearly an impoverished district which is undergoing substantial demographic changes due to incoming residents. It is noteworthy that the district is still characterized by great needs for basic services. For example, in 1981, 25% of the households did not have water and sewer service, and 23% also lacked electricity (16).

Among women, the lifetime prevalence of alcoholism decreased with age. This may be due to relaxation of traditional values among young women, values that ordinarily proscribe the intake of alcohol by women.

Use of alcohol by men was higher in those 25 and older (female use peaked at age 18–24 and then declined). This is in contrast to the U.S. ECA findings but similar to findings in Korea (4, 17, 18). In both the Peruvian and Korean cultures, drinking alcohol is viewed as masculine, and perhaps this encourages lifelong heavy drinking.

The present survey showed that alcoholics in Independencia are also at high risk for developing drug abuse and dependence. The risk of developing drug use disorders in alcoholic Peruvians from Independencia was 12.22 times the risk for the nonalcoholic group. This risk ratio is higher than in the U.S. ECA sites, where the relative risk ratio ranges from 2.7 to 10.2.

The association between alcoholism and other forms of substance abuse has been documented in numerous studies of both Hispanic and non-Hispanic groups in large urban centers, which indicate that individuals at risk for alcoholism are also prone to develop other forms of substance abuse (19–21).

The alcoholics in Independencia also showed a greater risk of suffering from antisocial personality disorder than did the nonalcoholics. Such an association has also been noted in non-Hispanic groups of alcoholics (14). The strong co-occurrence of alcoholism and antisocial personality disorder has been documented in other cultures (14), suggesting that a diagnosis of DSM-III antisocial personality disorder is valid in our Peruvian sample. Nevertheless, we emphasize that diagnosing antisocial personality disorder may be somewhat more problematic in impoverished populations, where individuals are at times pressured to engage in activities that may appear to be only antisocial (22, 23).

In summary, the prevalence of alcoholism in Independencia, Peru, is likely to be due to a combination of cultural mores that mediate the extent to which alcohol is acceptable in society but also may be linked to the stresses found in impoverished societies undergoing rapid social, cultural, and economic change. Determining the causes of the differences in alcoholism rates in different societies may reflect actual factors specific to given societies but may also be due to specific artifacts in diagnostic measurement that may be more operative in some societies than in others. Ultimately, explaining rates of alcoholism within a given society in a comparative context will depend not only on diagnostic measurements but also on understanding sociocultural factors that define the meaning and causation of alcohol intake in a given society.

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