Yonsei Medical Journal
Vol. 32, No. 4, 1991

Cross-Cultural Study of Alcoholism: Comparison between Kangwha, Korea and Yanbian, China

Kee Namkoong[1], Ho Young Lee[2], Man Hong Lee[2], Bum Yong Lee[2] and Dong Geun Lee[3]

A cross-cultural comparision study of alcohol use disorder between Kangwha and Yanbian was conducted using the Korean version of the Diagnostic Interivew Schedule (DIS). The subjects of the two areas studied were all native Koreans but lived in different sociocultural environments. A significant difference in lifetime prevalence rate of alchol abuse (Kangwha 16.48%, Yanbian 6.95%; $p<0.05$) and similarity of alcohol dependence (Kangwha 10.23%, Yanbian 11.50%; $p<0.05$) were found. Among a total of 21 items of alcoholic symptoms, 14 items showed significant differences in frequencies between the two areas.

The authors have suggested that alcohol abuse and alcohol dependence are two different diagnostic categories in origin, alcohol abuse is more related to socio-cultural environment and alcohol dependence to biogenetic background. The arthours have discussed the possible reasons for a higher prevalence rate of alcohol abuse in Kangwha compared to Yanbian.

Key Words: Cross-cultural, alcholism, epidemiology, Kangwha, Yanbian

Alcoholiosm is a major public health problem in many countries. In the United States, for instance, 10-15% of American adults have alcohol use disorder according to the Epidemiological Catchment Area (ECA) project (Robins *et al.* 1984). In Korea, the lifetime prevalence rate of alcohol use disorder was reported as 21.71% in Seoul, and 22.39% in rural areas (Lee *et al.* 1987). In the Kangwha psychiatric epidemiological survey, it was reported as 25% (Lee *et al*, 1989). As a country known to have a low rate of alcoholism in the past, this is a significant finding. As society was alarmed of the problem of alcoholism of such magnitude, the education of the public on the nature of alcohol use disorders and the establishment of treatment facilities became an urgent task.

In order to develop specific treatment modality for alcoholism, the etiology of the disease should be well understood. Researchers had focussed their efforts to define a specific etiology of alcoholism since Benjamin Rush established the disease concept of alcoholism in the late 19th century. Although the cause of alcoholism has not been established, several risk factors have been clarified. Risk factors of alcoholism can be divided into two major areas; biological and environmental aspects (Goodwin 1989). In the field of medicine, most of causative studies on alcoholism have been focused on the genetic and family histories including twin, adoption and biochemical studies. Among the studies of the last 80 years, more than one hundred showed a familial nature of alcholism (Cloninger *et al.* 1981).

For the study of environmental risk ractors, several approaches have been attempted. One method is the cross-cultural comparison study. The rationale for the cross-cultural study is the comparability of

Received March 5, 1991
Accepted November 14, 1991
Department of Psychiatry[1], Kwang Joo Neuropsychiatric Hospital, Kwang Joo, Korea
Department of Pyschiatry[2], Yonsei University College of Medicine, Seoul, Korea
Department of Psychiatry[3], Yanbian Medical School, Yanbian, China
Address reprint requests to Dr. H Y Lee, Department of Pyschiatry, Yonsei University College of Medicine, C.P.O. Box 8044, Seoul, Korea
This paper is a 1989 department project of The Department of Psychiatry, Yonsei University College of Medicine.

data collected from different cultures and the search for social and cultural correlates that may provide etiological clues. Both similarities and differences in data of the cultures can be very informative for the illumination of risk factors.

For an accurate cross-cultural study, however, the develpment of an effective instrument is crucial, particularly for the consistency of diagnoses and high reliability for cross-cultural applicability. For a diagnostic instrument, a highly specific operational criteria of Diagnotic and Statistical Manual of Mental Disorder, 3rd edition (DSM-III) was published in 1980, and the Diagnostic Interview Schedule (DIS), a structured interview form based on the DSM-III became available in 1981 (APA 1980, Robins *et al.* 1981). In the DSM-III, alcoholism is divided into two sections, alcohol induced organic mental disorder and alcohol use disorder which is further divided into alcohol abuse and alcohol dependence. The diagnostic Interview Schedule agress with this division as far as alcoholism is concerned. Because of the well-defined description of this division, DIS was chosen as the basic instrument for the cross-cultural study of alcoholism.

The initial stage of the study is to translate DIS and modify its contents in order to adjust it to Korean culture. The translation committee consisted of 12 experts: seven psychiatrists, one psychologist, one sociologist, one anthropologist, and two epidemiology experts from the Department of Public health Yonsei University, College of Medicine. The editing team decided to add more items that could be used for causal hypotheses, such items concerning family history, past medical history, etc. Many controversial cultural issues were discussed in the editing process. Types of alcoholic beverages commonly used in Korea replaced those listed in the original version, and the quantitative measurements of alcohol consumption was converted into Korean standards. Major modifications were made in somatization disorder and major depression for improved cross-cultural applicability. The phrasing of questions were changed while the key concepts and diagnostic criteria of the original questions were maintained. The Korean version of DIS was tested for reliability, and the kappa coefficients were satisfactory, particularly those involving alcoholism (0.70).

For the survey sites, the study team selected Kangwha island in Korea and Yanbian Prefecture in China. There are about 2 million living Koreans in Yanbian Korean Autonomous Prefecture in North East China who have preserved the Korean linkage through their social code of inter-Korean marriage. They share the identical genetic background with Koreans in Korea, but have been living in china for many decades. In additon, due to the ideological differences between Korea and China and the war between the two countries, be it hot or cold, people of the two areas had no contacts in the past 50 years. At present, even though communication has been opened to and extent, Korean and China differ greatly in political, ideological, economical and cultural backgrounds. These conditions provide interesting cross-cultural perspectives in the comparisons of the prevalence of mental disorders.

On the study of alcoholism in this premise, the team formulated the following hypotheses

1) Life time prevalence rates of alcohol abuse and alcohol depencence in the two areas would show no difference.

2) Symptomatology of alcohol use disorder in the two areas would be comparable.

SUBJECTS AND METHOD

Subjects

Kangwha: The smallest residential unit is a ban, consisiting of aproximately 20 households. Seven to eight bans from the next smallest unit, the li, which is usually a rural village. Ten to twelve li or villages form a myun, which consists of approximately 2, 000 to 5,000 residents. For the target sample areas, three myuns and one eup (a rural town) is chosen, Kangwha eup is the largest town on the island where the provencial capital is located. Residents of the eup are either merchants or farmers, Residents of all other areas are primarily farmers and fishermen, One ban was used as sampling unit. In the target areas, there are 411 bans. 46 of which were chosen randomly, using a single-stage random cluster sampling design with a sampling fraction of 11.1%.

To proceed with the survery, a list of all residents in the age range of 18 to 64 in the 46 ban, was obtained from village offices. One interviewer was assigned to designated ban listings. The interviewer followed the order of the official ban lists, without any deviations.

The only exclusion from this survey was the residents of an asylum-type 80 bed mental institution due to the lack of cooperation by the institution staff. The demographic characteristics of the sample are listed on table 1.

Table 1. Sample characteristics

Total population size	87,551(1983 census)
Sample population	2,195
Completion no.	1,450(66.1%)
Males	645(44.5%)
Females	805(55.5%)
Sample characteristics	Noninstitutionalized rural adults
Sample age-range	18-64

Table 2. Sociodemorgraphic characteristics of sample in Kangwha and Yanbian

Demograhic characteristics	Kangwha (N=1450)	Yanbian (N=1532)
Sex		
male	652(13.3)	697(45.5)
female	798(55.0)	834(54.5)
Age		
10~24	192(13.3)	368(24.0)
25~44	669(46.1)	635(41.5)
45~64	589(40.6)	528(34.5)
Marital status	252(17.7)	394(25.8)
not married	1100(77.1)	1060(69.3)
married	8(0.6)	4(0.3)
living together	5(0.4)	7(0.5)
divorced	2(0.1)	4(0.3)
remarried	69(4.8)	60(3.9)
bereaved		
Education (years)	173(12.2)	113(7.5)
1~6	463(32.7)	171(11.3)
7~9	314(22.1)	568(37.6)
10~12	407(28.7)	512(33.9)
13~	61(4.3)	148(9.8)
Occupation		
farmer or fishermen	624(43.1)	804(52.5)
others	826(56.9)	728(47.5)
Birth place		
Kangwha/Yanbian	1150(79.9)	1367(89.9)
others	289(20.1)	153(10.1)

*( ): %

Yanbian: Yanbian is a Korean Autonomous Prefecture located in the northeast of China. The total population in 1982 was 1,871,521, of which 754, 567 (40.32%) were Koreans. Most of these Koreans are descendents of 19th century migrants from either Hamkyung-do or Pyungan do, the two main districts of the northern Korean peninsula (Wang 1984). They have been using the Korean language. The whole prefecture consisits of two cities, Yangil and Dommon and 6 hyens, The area is further divided into 17 jins, 94 hyangs, 1,368 chons and 2, 960 doons. Yangil city is the capital of Yanbian Korean Autonomous Prefecture. 43,232 households live within the target area, with a population of 175, 957 at the time of the survey.

Subjects were selected by multi-stage random cluster sampling. Among the selected 1,000 households of both rural and urban areas, 3,304 adults between interviewed. 1,532 subjects completed the interview and the completion rate was 99.0% (Lee *et al.* 1990). The socio-demographic characteristics of the subjects of Kangwha and Yanbian are shown in table 2.

Instrument

The Korean version of DIS-III-A was proven to be acceptable by the authors' validity study. It was reported that kappa was 0.70, specificity 0.99 and sensitivity 0.71 for alcohol use disorders (Lee *et al.* 1986).

Following DIS criteria, alcohol abuse was diagnosed when 1) more than one of 7 items of pathologic pattern of alcohol use were simultaneonsly positive and 2) more than one of 8 items of impairment of socio-occupational functioning were positive. Alcohol dependence was diagnosed when more than one of 6 items of tolerance or withdrawl were positive in additaion to 1) or 2).

Training of lay-interviewer

DIS trained members for the United States ECA project, trained 30 selected volunteer technicians from Kangwha and 65 juniors of the Yanbian medical school in Yanbian for a preriod of 2 weeks. Lay-Interivewers were trained by the same training schedule as the St. Louis ECA project. In the first week, intervieweres received lectures on the concepts of mental disorders and video-assisted instructions on interviewing. Practice interviews were audited followed by debriefing, remedial training, role-playing, and mock probing. In the following week, they interviewed both in-patients and outpatients, in addition to volunteer normal subjects. Supervised interviews were followed by discussions.

On the last two days of training, they were given a field pretest.

Survey

Actual survey was conducted for one month at Kangwha and Yanbian. Results of the interviews were reviewed daily by supervisors for possible interview errors. Any suspected errors or questionable answers were returned to the interviewers for clarification and reinterviews. Reinterview of the subjects were repeated up to 3 times, if necessary, for each subject when the interview was not completed or when the interviewee was not present.

Analysis of data

Data was analysed at the Health Science Center of University of Texas using the DIS program developed at Washington University (St. Louis, Missouri).

Prevlaence rates were estimated through weighting and post stratification procedures so that survey-based estimates of sex, age distributions of samples were comparable with those of the general population of Kangwha and Yanbian.

Differences in prevalence rates between the two areas were compared by the z-test. The frequencies of each symptom and medical complication were compared through the chi-square test.

RESULTS

Prevalence rates of alcohol use disorders in the two areas

Prevalence rates of alcohol use disorder were 26.71% in Kangwha and 18.46% in Yanbian, The

Table 3. Comparison of lifetime prevalence rates of alcohol use disorders between Kangwha and Yanbian

	Kangwha (N=1450)	Yanbian (N=1532)	significance
Alcohol abuse	16.48	6.95	*
Alc. dependence	10.23	11.51	
without abuse	1.13	2.82	*
with abuse	9.10	8.69	
Total	26.71	18.46	*

* $p<0.5$

Table 4. Comparison of lifetime prevalence rates of alcohol use disorders between Kangwha and Yanbian by sociodemographic variables

	Alcohol abuse			Alcohol dependence		
	Kangwha		Yanbian	Kangwha		Yanbian
Sex						
male	30.55	*	13.81	18.89		20.03
female	1.75	*	0.12	1.18	*	-
Age						
10~24	14.40	*	6.55	5.70		3.29
25~44	19.27	*	7.91	10.03	*	13.79
45~64	13.97	*	5.88	14.23		16.51
Marital status						
single	16.97	*	6.22	6.73		3.73
married	16.43	*	7.34	11.95	*	15.41
Education						
none	6.51	*	1.76	8.38	*	1.88
~ 6	13.74	*	1.33	11.37		11.90
~ 9	18.99	*	6.24	10.50		12.63
~12	20.14	*	7.52	9.58		9.37
13~	26.93	*	14.83	10.73		13.28
Occupation						
farmer or fishermen	20.83	*	7.92	14.31		11.82
others	13.99	*	6.39	7.84	*	13.16

* statistically significant differences between Kangwha and Yanbian ($p<0.05$)

difference of the rates of the two areas is statistically significant ($p<0.05$). For alcohol abuse, the prevalence rate in Kangwha was 16.48% and that in Yanbia was 6.95%. The difference of the rates of alcohol abuse was also statistically significant ($p<0.05$). A comparison of the prevalence rates of alcohol dependence in the two areas, however, was not remarkable, 10.23% in Kangwha and 11.51% in Yanbian (Table 3).

When comparing prevalence rates of alcohol abuse and alcohol dependence between the two areas by socio-demographic characteristics, alcohol abuse showed significant differences in all of the characteristics studied. For alcohol depenceence, however, prevalence rates of the two areas were significantly different in certain groups such as in female, 25-44 age group, married, not-educated and other occupations. The prevalence rate of alcohol abuse was highest in the 25 to 44 year age group in both Kangwha and Yanbian, while the rate of alcohol dependence increased with age in both areas. The prevealence rates of alcohol dependence increased with age in both areas. The prevalence rates of alcohol abuse were not significantly different by marital status in both areas, while the rates of alcohol dependence were significantly higher in the married groups. Prevalence rates of alcohol abuse increased with level of eduction but the rates of alcohol dependence remained constant.

Frequencies of alcoholic symptoms and medical complications

Comparing the frequencies of alcoholic symptoms of the two areas, 14 items showed significant differences. In 7 items were no significant differences (Table 5). The item "considered himself as excessive drinker" was most frequent of all the alcoholic symtopoms in Kangwha (23.9%), whereas the item,

Table 5. Comparison of frequencies(%) of DIS-alcoholic symptoms in general population between Kangwha and Yanbian

Symptoms	Kangwha (n=1450)	Yanbian (n=1532)
Pathologic pattern of alcohol use		
occasional drink of a fifth of spirits	23.9(2)+	18.2(1)*
black out	17.2(4)	7.7(6)**
ever wanted to stop drinking	12.9(5)	9.2(4)*
tried to control drinking	11.7(6)	6.9(9)*
bender at least two days	2.5(16)	1.2(16)*
continue to drink even with serious physical illness	5.2(10)	5.7(11)
unable to work without a drink	0.7(17)	0.9(17)
Impairment of socio-occupational functioning		
family object to drinking	18.5(3)	12.8(3)*
considered himself as excessive drinker	24.2(1)	16.4(2)*
job troubles	9.8(9)	5.9(10)*
physical fights	10.4(8)	4.3(12)*
accident while intoxicated	4.9(12)	2.5(13)*
arrest by police	4.5(13)	1.3(15)*
fired from job	0.6(18)	0.3(19)
consult physician about alcohol problem	11.7(6)	8.8(5)*
Tolerance/Withdrawal		
drinks 7 or more drink for at least 2 weeks	4.4(14)	7.3(7)*
need to drink before breakfast	5.0(11)	7.2(8)*
tremor	3.8(15)	2.5(13)
hallucinations	0.2(20)	0.3(19)
symptoms of delirium tremens	0.3(19)	0.7(18)
convulsions	0.1(21)	0.1(21)

+Numbers of parentheses refer to rank order of each symptom in each area
*$p<.05$ in chi-square test
**$p<.01$ in chi-square test

Table 6. Comparison of prevalence of medical complications from alchol drinking in general population between Kangwha and Yanbian(%)

Medical complications	Kangwha (N=1450)	Yanbian (N=1532)
Liver disease or jaundice	1.9	1.7
G-I trouble or G-I bleeding	2.1	2.1
Peripheral neuropathy	1.0	0.6
Memory impairment	0.9	1.6
Pancreatitis	0.4	0.1

* no significant differences.

"occasional drink of a fifth of spirits" was most frequent in Yanbian. There was no significant difference in the frequencies of all the 5 items of alcohol induced medical complications of the two areas (Table 6).

DISCUSSION

The sites of this study, Kangwha and Yanbian, offer a unique opportunity for cross-cultural comparison. The Koreans of the two areas, who have been separated for the past forty-five years, with little communication, have preserved what was once identical Korean cultural heritage. Therfore cross-cultural comparison of these two areas on socio-demographic factors offer significant etiological variances of alcoholism.

Alcoholism has been a serious health problem of the areas in recent years. An analysis of the symptomatology and demography of alcoholism and a comparison of prevalence rates between the two areas using the same reserch instrument, would be significant from a cross-cultural perspective. The results may indicate what socio-cultural risk factors are involved in the etiology of alcoholism.

Goodwin has concluded in his review of twin, genetic marker and adoption studies related to alcoholism that"alcoholism runs in families." The characteristics of familial alcoholism are family history of alcoholism, early onset, severity of symptoms, and the absence of other conspicuous psychopathology (Goodwin 1976). On the other hand, Cloninger *et al.* (1981) concluded otherwise through a corss-fostering analysis of Stockholm adoption study (Bohnan 1978). He suggested that genetic factors had no effect on the prevalence of alcoholism. However, socio-cultural factors influenced the prevalence of alcoholism. The results of our study indicate that the symptoms are more severe and the familial tendency stronger in alcohol dependence than alcohol abuse. This implies that Goodwin's familial alcoholism may agree with what is diagnosable as alcohol depencence, and the nonfamilial, environmentally affected alcoholism as alcohol abuse. The results of our study show that Cloninger's etiological theory on alcoholism explains many characteristics of alcohol abuse, while Goodwin's theory explains those of alcohol dependence.

Schuckit *et al.* (1985) argued that an alcohol abuser and an alcohol depqndent are idemtoca; except that the former takes more drinks per day, and has more alcohol-related medical problems than the latter. And there are more hsopitalizations among alcohol dependents than among alcohol abusers (Schuckit *et al.* 1985). Similarly in an epidemiological study of mental disorders in Kangwha island, the authors reported that the differences of symptomatology between alcohol dependence and alcohol abuse were merely in quantity and not in quality, and that the two are not separate entities, alcohol dependence being an advanced form of alcohol abuse (Namkoong *et al.* 1991).

The results of this study, however, suggest that alcohol dependence and alcohol abuse may differ fundamentally as two diseases, contradicting the assumption derived from the previous stoudy in Kangwha. The results of this study and the two-disease theory are congruent to a study of Hwu *et al.* (1988) of Taipai using DIS-CM in 1981. They reported that alcohol abuse and alcohol dependence are two stable diagnostic categories of the two different disorders. They also reported that alcohol abuse is more affected by psychosocial changes than alcohol dependence (Hwu *et al.* 1988).

A significant finding of this study is the remarkably higher lifetime prevealence rate of alcohol abuse in Kangwha compared to that of Yanbian, while the lifetime prevalence rates of alcohol dependence of the two areas are similar. Although there are some differences in socio-demographic characteristics between the two subject areas, this can also be explained in many other ways. First, the rapid pace of industrialization on the national level has had a great impact growth in Korea have been more repid than in China in last two decades. A new lifestyle with increased individual stress, income and the production of alcoholic beverages is the by-products of such rapid social changes. It was previously reported that the prevalence rate of alcohol abuse is sensitive to socio-cultural factors

(Voorhees *et al.* 1989). Second, a socio-cultural control system has been well maintained in China because of the closed socialistic political system. It applies to the availablity of alcohol as well as the drinking behaviours of people. Society, in general, would not permit socio-occupational impariments of people due to alcohol abuse in China. China is a much more controlled nation in every aspect of individual life. Furthermore, the traditional Chinese control system such as prohibitive cultural sanctions on inebriety in public or in front of seniors has been well maintained. Such traditional moral codes on dringking behaviours have broken down in Korea as tide of modernization and westernization have swept through the nation. It is interesting to note that the prevalence rate of alcoholism had dropped significantly during the period of prohibition in the United States (Meyer *et al.* 1988). Finally, there has been a trend among Korean adults to brag about one's excessive drinking, which has resulted in pressure compelling them to drink more than they can handle. The trend is more pronounce among teen-agers and middle class businessmen who are under great stress with their daily work load.

Among the 15 items of pathological patterns of alcohol use and the impairment of socio-occupational functionings, as were shown in table 4 and 5,. 12 items showed significant difference in frequency between items showed remakable differences in the 5 items of medical complications. This is inevitable because the diagnostic criteria of the two disorders, alcohol dependence and alcohol abuse, are inclusive of the differences of severity as the symptoms of withdrawl and tolerance are added in the diagnostic criteria of alcohol dependence.

REFERENCES

American Psychiatric Association: *Diagnostic and statistical mannual of mental disorders,* 3rd ed. Washinton D.C., American Psychiatric Association. *1980*

Bohman M: Some genetic aspects of alcoholism and criminality-A population of adoptee. *Arch Gen Psychiatr 35: 269-276, 1978*

Cloninger CR, Bohman M, Sigvardsson S: Inheritance of alcohol abuse-Cross-fostering analysis of adopted men. *Arch Gen Psychiatry 38: 861-868, 1981*

Goodwin DW: Alcoholism and heredity-A review and hypothesis. *Arch Gen Psychiatr 36: 57-61, 1979*

Goodwin DW: Alcoholism and genetics-The sin of the fathers. *Arch Gen psychiatr 42: 171-174, 1985*

Goodwin DW: *Alcoholism.* In Kaplan HI, Sadock BJ, ed. *Comprehensive textbook of psychiatry,* 5th ed. Baltimore, Williams & Wilkins, *1989, 695-697*

Helzer JE, Canino GL, Hwu HG, Bland RC, Newman S, Yeh EK: *Alcoholism: A cross-national comparison of population surveys with the diagnostic interivew schedule.* In. Rose RM, Barrett JE, ed. *Alcoholism: Origins and outcome.* 1st ed. New York, Reven Press, *1988, 31-48*

Hwu HG, Yeh EK, Yeh YL, Chang LY: Alcoholism by Chinese diagnostic interiew schedule: A prevalence and validity study. *Acta psychiatr Scand 77: 7-13, 1988*

Lee HY, Namkoong K, Lee MH, Min SK, Kim SY, Song DH, Lee ES, Roberts R: Kangwha psychiatric epidemiologic survery (III)-Lifetime prevalence of psychiatric disorders. *J Kor Neuropyschiatr Assoc 28 (6): 984-999, 1989*

Lee CK, Han JH, Choi JO: The epidemiological study of mental disorders in Korea(IX)-Alcoholism, anxiety and depression. *Seoul J Psychiatr, 12: 183-191, 1986*

Lee MH, Lee HY, Min SK, Kim KH, Kim SY, Song DH, Shin JH, Park MH, Bae A, Song KY: Development of Korean version of the NIMH-Diagnostic Interview Schedule and its validity test-Kangwha psychiatric epidemiologic survey(I). *J Kor Neuropsychiatr Assoc 28(6): 300-313, 1986*

Lee MH, Namkoong K, Lee HY, Min SK, Yu E, Oh HC, Yoo SH, Kim IS: Kangwha psychiatric epidemiologic survery(II)-Survey design. *J Kor Neuropsychiatr Assoc 28(6): 972, 1989*

Meyer RE: *Overview of the concept of alcoholism.* In Rose RM, Barrett JE, ed. *Alcoholism: Origins and outcome, 1st ed.* New York, Raven Press, *1988, 1-14*

Namkoong K, Noh JS, Lee HY: Clinical implications of alcohol use disorder. *J Kor Neuropsychiatr Assoc 30 (1): 135-145, 1991*

Robins LN, Helzer JE, Weissman MM, Orvaschel H, Gruenberg E, Burke JD, Regier DA: Lifetime prevalence of specific psychiatric disorders in three sites. *Arch Gen Psychiatr 41: 949-958, 1984*

Robins LN, Helzer JE, Croughan J, Ratcliff KS: National Institute of Mental Health Diagnostic Interview Schedule-Its History, Characteristics and Validity. *Arch Gen Psychiatr 38: 381-389, 1981*

Schuckit MA, Zisook S, Mortola J: Clinical implications of DSA-III diagnoses of alchohol abuse and alcohol dependence. *Am J Psychiatr 142: 1403-1408, 1985*

Wang DS: *Outlooks of Yanbien Korean autonomous prefecturia.* Yangil, Yanbien public press, *1984*

Voorhees DJ, Rosen DH, Suzman RM, Caetano R: Shetland: Shetland: Psychiatric symptoms and alcohol consumption in a community undergoing socioeconomic development. *Acta Psychiatr Scand 79(suppl. 384): 141-156, 1989*