

# ALCOHOL AND SUICIDE IN ALASKA NATIVES

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*Abstract: A retrospective review of hospital records from the Alaska Native Medical Center, controlled for age, sex, and race, is presented for 33 Alaska Native suicide completers who died between 1980 and 1984. Suicide rates for Alaska Natives were twice the national average during the study period. The only significant differences between the suicide and control groups was the history of a prior suicide attempt (p 0.003). Alcohol abuse was diagnosed more often than any other psychiatric disorder in the suicide group and appears to be the most important antecedent of suicide in this study.*

Suicide has long been recognized as a pressing mental health problem for many of America's Native peoples. For decades, the suicide rate among Alaska Natives was nearly identical to the national rate. For example, for the years 1961–1965, the suicide rate for Alaska Natives was 13 per 100,000. However, in 1966, suicide rates began to rise, and during the 5-year period between 1966 and 1970, rates doubled to 25/100,000 (Kraus, 1974). Suicide rates continued to rise throughout the 1970s, and during the mid-1970s, suicide rates were approximately 43/100,000 for the growing Alaska Native population (Alaska Native Health Board, 1985). Toward the end of the 1970s and 1980s, official suicide rates dropped to 23/100,000 (Kettl & Bixler, 1991), but the decrease in rates was probably reflective of the inexact nature of collecting death data in the Alaska bush. Death certificates, notoriously inaccurate in giving exact suicide data, were probably more suspect in the bush when completed in very small communities

by those who knew the suicide victims and their families. An effort to more completely estimate the nature of the suicide problem among Alaska Natives was undertaken, and rates returned to 43/100,000 (Hlady & Middaugh, 1988) for 1983–1984. The rates continue to climb. In 1985, suicide rates for Alaska Natives were 62.4/100,000 (Division of Public Health, state of Alaska, 1988) and were 67.6/100,000 in 1986 (Anderegger, Zangri, & Vigue, 1990).

This growth in suicide among Alaska Natives is associated with a number of social developments in the Alaska Native life-style, especially the economic boom in Alaska. Alaska Natives no longer live by subsistence hunting in relative isolation from much of the world. With the discovery of oil on the north slope of Alaska, an avalanche of economic growth flooded the Native culture. Money became available for the latest in telecommunications, and television quickly became available in virtually every village. This sudden introduction of money and Western culture via television was postulated to have contributed to the growing suicide rates for Alaska Natives (Kettl and Bixler, 1991; Hlady and Middaugh, 1988; Kraus & Buffler, 1979). This hypothesis is congruent with Durkheim's (1951) hypothesis that whatever weakens the link between the individual and the social group to which he belongs will tend to increase the suicide rate for the group as a whole.

However, the evolving acculturation of the Alaska Native people affected not only economic development but probably alcohol use as well. Kelso and DuBay (1989) eloquently describe the history of alcohol use and abuse among the Alaska Native peoples throughout the centuries since the beginning of white exploration of Alaska. Decades of alcohol abuse and binge drinking led to prohibition of alcohol use for Alaska Natives until 1953. A decade after this prohibition ended, suicide rates among Alaska Natives began to rise steadily.

Accordingly, alcohol abuse has been repeatedly implicated as a contributing factor to the growth of Alaska Native suicide. Before the rise of suicide rates in the mid-1960s, Kraus (1974) believed that "suicidal behavior occurs in the context of chronic marital difficulties complicated by alcohol." At the onset of the rise in suicide rates, Blackwood (1978) estimated that 50% of the suicides between 1971 and 1977 among Alaska Natives were alcohol related. Travis (1983) estimated that 86% of Alaska Native suicides in northwest Alaska were alcohol related. Hlady and Middaugh (1988) more carefully examined the effect alcohol may have played in suicides by examining the blood alcohol level of suicide victims postmortem. For 1983 and 1984, 79% of Alaska Native suicide victims had detectable levels of alcohol, while 48% of white suicides in Alaska had comparable levels. Moreover, 54% of Native suicide victims had blood alcohol concentrations

in the impaired range (greater than 100 mg/dl), compared to only 20% of white Alaska suicide victims. Furthermore, those with blood alcohol concentration in the impaired range more likely died by gunshot wound.

Studies of Alaska Native suicide attempts showed much the same data. Parkin (1974) examined suicide attempts in the Fairbanks area from 1960 to 1971 and found that 40% of all Eskimo female attempts and 48% of the Indian female suicide attempts were alcohol related. Only 13% of the Caucasian female suicide attempts in the same period were judged to be alcohol related. Male suicide attempts did not occur with sufficient frequency in the study group to give a fair estimate of the same data. Kraus and Buffler (1979) provided yearly data for Alaska Native suicide attempts in the early 1970s and showed the level of alcohol-related attempts varied annually from a low of 36.8% in 1972 to a high of 59.7% in 1976. Kost-Grant (1983) retrospectively examined Alaska Natives who had survived a self-inflicted gunshot wound and found that 59% had been using alcohol at the time of the shooting.

Alcohol has also been implicated frequently in suicides in other Native groups (McIntosh & Santos, 1981; McIntosh, 1983). Concerned that alcohol consumption had tripled in Greenland over a 15-year period, Grove and Lyngø (1979) studied suicide in Greenland involving Eskimo and mixed-race Greenlanders and Dane peoples. They found that among those who attempted or completed suicide, 56% were under the influence of alcohol. Sixty-eight percent of those who attempted or completed suicide suffered from alcoholism, compared to only 5% of their control group, and this difference was highly statistically significant.

Studies of Indians in the Pacific Northwest also showed frequent association of alcohol abuse with suicide. Shore (1975) found that over a 3-year period, alcohol was involved in 11 of 20 suicides there. In the U.S. Pacific Northwest, during a 6-month period, all of the Indian adult males who attempted suicide were alcoholic (Kinzie, Shore, & Patterson, 1972). Among British Columbia Indians, Hislop, Threlfall, Gallagher, and Bard (1987) pointed to alcohol as a contributing factor but provided no exact data to substantiate the association.

In the desert Southwest, alcohol was often associated with suicide among Native peoples. Conrad and Kahn (1974) showed that among the Papago Indians over a 3-year period, alcohol was involved in 8 of 10 suicides and discovered that 14 of the 34 suicide attempters were "heavy drinkers." Among the Hopi, Levy and Kunitz (1987) felt alcohol contributed to suicide but did not offer exact data to substantiate their observation.

The growth in Native suicide, where it occurs, is fueled primarily by an increase in youth suicide. It should be noted that alcohol and drug abuse not only is a factor of suicide among America's Native peoples but is a

frequent problem in youth suicide throughout the country. In a retrospective study of suicide in Seattle of people of all races, Dorpat and Ripley (1960) found that 31% of the suicide victims were alcoholics. In a recent review of 133 suicide victims younger than age 30 in San Diego, Fowler, Rich, and Young (1986) found that 53% could be given a principal diagnosis of substance abuse. Mixed abuse with marijuana, alcohol, and cocaine was the norm. Suicide, then, especially among young people, is frequently associated with substance abuse in both Native and non-Native groups.

Ample evidence is available to suggest that the rise of suicide in Alaska Natives and other Native peoples is associated with alcohol abuse. While there is broad agreement that many Native suicides are alcohol related, most studies of the topic have been limited in that they are suicide surveys and do not include a control group for comparison. This control group, of course, is essential to quantify those differences between those who commit suicide and other members of the same cultural group.

To help identify etiologic factors involved in the dramatic rise in Alaska Native suicide, we examined the medical histories of our patients at the Alaska Native Medical Center. A retrospective study of hospital records of suicide victims was compared to a control group of Alaska Natives from the clinical histories maintained by the Indian Health Service. Specifically, we were interested to see if there were indeed differences in the incidence of alcohol abuse and other psychiatric disorders in suicide victims compared to a control group drawn from the same population matched for age and sex.

#### Method

Death certificates for every Alaska Native who died between 1980 and 1984 were hand-reviewed at the Centers for Disease Control offices in Anchorage, Alaska. This review revealed 74 patients who committed suicide during that period, almost certainly an underestimate of the true suicide rate. Death certificate data often underestimate the true incidence of suicide, and in Alaska, this is particularly true in the bush, where death certificates are often completed by those who are close to the victims and their families.

The list of suicide completers was then cross-matched against a list of patients who had received care at the Alaska Native Medical Center in Anchorage, a tertiary-care facility that serves as the referral center for the 60,000 Alaska Natives served by the Alaska Area Indian Health Service. It also serves as the community hospital for the 12,000 Alaska Natives who reside in the Anchorage area. Through this cross-matching, a total of 39

charts were found representing every individual who had committed suicide between 1980 and 1984 and who had received care at the center.

The charts of these suicide victims were then reviewed to see if they contained sufficient clinical information to formulate a medical and psychiatric history. In 1979 the Alaska Area Indian Health Service instituted the patient confidential information statement (PCIS), a computerized list of patient problems and patient contacts with all medical caregivers in the Alaska area. Therefore, any contact a patient may have had with medical caregivers in the Alaska Area Indian Health Service would be listed on this statement. Because care through the Indian Health Service is provided at no cost as part of benefits to Alaska Natives and because in many parts of Alaska no other care is available, the review represents a fairly complete, if not absolute, review of medical-care delivery to the individual.

Cases were included in the study group if they contained a comprehensive history with a review of systems including psychiatric history or, alternatively, if the chart represented documentation of ongoing medical care for the individual. A history of ongoing medical care was operationally defined as an individual receiving documented care through the Indian Health Service for at least two visits at least 1 year apart. Six charts did not meet these criteria.

A total of 33 charts were obtained through this method, representing the most complete description available of health problems for each individual. The charts were reviewed to obtain the psychiatric, medical, and alcohol-use history for each individual. An individual was determined to have suffered from alcohol abuse if the chart documented physical or mental health problems or problems in interpersonal relationships stemming from alcohol use. Diagnoses were made by all types of health care professionals. Physicians in all specialties, especially family practitioners, made most diagnoses, but some were added by physician's assistants or nurse practitioners. All diagnoses were considered to be equal regardless of the background of the caregiver.

A control group was then gathered by selecting the next chart alphabetically in the hospital records of an individual having the same age and sex as the suicide victim. Charts were not used if they were judged to be inadequate according to the criteria previously described. This method provided an age-, sex-, and race-matched control group. The control charts were similarly reviewed for medical history, psychiatric diagnoses, and alcohol-use history.

All individuals in the study, in both the suicide and the control group, were Alaska Natives eligible to receive care through the Indian Health Service. All patients were at least part Eskimo, Aleut, or Indian and were residing in Alaska during the period from 1980 through 1984.

The Alaska Natives are a culturally diverse group of peoples scattered across a vast landmass. However, we will examine the records of Alaska Natives as one, albeit heterogeneous, group. The relatively small number of suicides surveyed in this paper prohibits the data from being broken down into smaller cultural units for analysis.

Data were summed for each group and comparisons between the suicide group and the control group were made using chi-square statistics. The critical statistical confidence level selected for all analyses was  $p < 0.05$ .

### Results

The 33 suicide completers and matched control groups each consisted of 25 men and 8 women with an average age of 30.8 years. This compares to an average age of 26.4 years for all Alaska Native suicide completers during the same period.

The lifetime prevalence of alcohol abuse did clearly separate the suicide group from its age- and sex-matched controls. Approximately half of the suicides had a documented history of alcohol abuse in their medical records, significantly more than the control group ( $p = 0.003$ , see Table 1).

	Suicide Victims	Control Group
<b>PSYCHIATRIC HISTORY</b>		
Psychiatric Diagnosis	9 (27%)	8 (24%)
Psychiatric Admission	5 (15%)	1 (3%)
Prior Suicide Attempt	7 (21%)	0 (0%)
<b>ALCOHOL HISTORY</b>		
Abuse **	18 (54.5%)	10 (30.3%)
<b>MEDICAL HISTORY</b>		
Seizure Disorder	4 (12%)	1 (3%)
Congenital Problems	3 (9%)	2 (6%)
Fracture	6 (18%)	6 (18%)
TB	3 (9%)	3 (9%)
* $P < 0.05$		
** $P < 0.003$		

Suicide Victims		Control Group	
"Depression"	50%	"Depression"	30%
Major Depression	20%	Major Depression	10%
Dysthymia	10%	Adjustment Disorder with depressed mood	10%
? Type	20%	? Type	10%
Conversion Disorder	10%	Generalized Anxiety Disorder	20%
Personality Disorder	10%	Marital Problem	20%
?	30%	Schizophrenia, paranoid type	10%
		Bulimia	10%
		Mental Retardation	10%

Interestingly, the incidence of psychiatric diagnoses (other than alcohol abuse) did not separate the suicide and control groups. Half of all psychiatric diagnoses made in the suicide group were for a form of depression, compared to 30% in the control group. This difference did not reach statistical significance, however. The control group showed a broad range of diagnoses, while depressive disorders clearly predominated the psychiatric diagnoses in the suicide group (see Table 2).

History of prior suicide attempts also statistically significantly separated the two groups. Twenty-one percent of the patients who eventually committed suicide had previously attempted suicide, while none of the control group had made a documented suicide attempt ( $p < 0.05$ , see Table 1). It is important to note that every suicide victim who had a prior suicide attempt had a history of both alcohol abuse and psychiatric disorders.

Suicide completers and their controls did not differ significantly in their medical histories. Although four times as many members of the suicide group had a seizure disorder (12% vs. 3% in the control group), this difference did not reach statistical significance. Common medical problems for Alaska Natives included tuberculosis and trauma, but they appeared equally in the charts of both groups (see Table 1). A variety of other common medical problems were found equally in both groups.

### Discussion

The medical histories of Alaska Native suicide completers, then, differed from an age-, sex-, and race-matched control group only in the history of alcohol abuse and the history of a prior suicide attempt. Prior psychiatric history and a variety of medical problems did not separate the two groups.

The results of our controlled study again underscore the importance of alcohol abuse as a contributor to Alaska Native suicide. While it is clear that alcohol abuse by itself is not a sufficient cause of suicide, it seems clear that alcohol abuse is an important contributing factor in many, if not half, of Alaska Native suicides. Suicide is often an impulsive act; therefore, it makes clinical sense that those who have impaired impulse control from alcohol intoxication would be at greater risk for suicide when despondent. Those who are intoxicated would be less likely to control their hostile impulses — against others and against themselves. Beginning with the work of Kraus (Kraus & Buffler, 1979; Kraus, 1974), as outlined in the introduction, most theorists have pointed to alcohol abuse as an important factor in the growth of Alaska Native suicide, and these data further substantiate and support those conclusions. While cultural change seems to have contributed to higher suicide rates among Alaska Natives, the most important cultural change may in fact be the greater presence of alcohol abuse in the society, which may ignite the personal pathology already present in the victim.

The proportion of our group who had diagnosed substance abuse disorders (54.5%) is remarkably similar to Fowler, Rich, and Young's (1986) survey in which 53% of their suicide victims from all races had a substance abuse diagnosis. In their study sample, no victim was older than 30. Our average age, 30.8 years, is only slightly higher than their study group. Because Alaska Native suicide is predominantly a problem of the young (Kettl & Bixler, 1991; Hlady & Middaugh, 1988) and because suicide from 1979 to 1984 was nonexistent in those over age 55 (Kettl & Bixler, 1991), alcohol abuse may be predominantly contributing to suicide among Alaska Native youth, not the entire population. Because the Alaska Native youth make up such a large proportion of the general population and an even larger part of the population of suicide victims, any factor that affects this cohort would necessarily have a large impact on the suicide rates for the whole society. Therefore, suicide prevention efforts focusing on education about alcohol abuse should then be directed primarily at Alaska Native youth.

Among the 27% of the suicide group who had a diagnosed psychiatric disorder, half were for a depressive disorder. The number of suicide victims with diagnosed depressive disorders (13.5%) is relatively low compared to

other studies of suicide in peoples of all races. In these studies, 44% (Roy, 1982; Robins, Murphey, Wilkonson, Gassner, & Kayes, 1959) to 64% (Barracough, 1974) suffered from depression. The low rate of diagnosed psychiatric disorders suggest the "extra" suicides among Alaska Natives may be fueled by alcoholism rather than depression or other psychiatric problems.

Some limitations of our study require review. The major limitation in interpreting our data is the diverse number of clinical raters and the varying levels of their training. Because of the geographic problems in delivering health care to Alaska Natives, much of it is given by general practitioners in small general hospitals that service large geographic areas. Psychiatric and alcohol diagnoses represented the medical providers' clinical impressions based on their interaction with the patient and were not necessarily based on DSM-III-R or other standardized criteria. The sample size, 33 patients, is relatively small.

Despite these limitations, the review represents a rather complete history of medical and psychiatric care provided for individuals in both suicide victim and control groups using the same medical records system as the data source. Because care for Alaska Natives is free through the Indian Health Service and is frequently the only care available in outlying areas, if an Alaska Native received care, it would likely be recorded through this system.

Thus, the presence of an exact control group — carefully matched for age and sex and having the same diagnostic and record-keeping system — is essential to interpret the data. Any diagnostic bias would be present in both the study and the control group to the same degree. So while absolute incidence of any health problem cannot be determined from the data, comparative information describing how suicide victims differ from controls can be obtained.

While it is widely acknowledged that it is impossible to predict suicide with certainty in any individual (Murphy, 1983; Pokorney, 1983), clinicians are expected to make this judgment in every psychiatric evaluation and every emergency room visit. Our data suggest that those Alaska Natives with a history of alcohol abuse, especially if linked with a prior psychiatric disorder or a prior suicide attempt, are at high risk for suicide and should be evaluated very carefully. After the initial disposition, much effort should be addressed to their follow-up and ongoing mental health needs. This casefinding and follow-up may well be helpful in making sure care is accessed by those most at risk for suicide.

Finally, it is evident that the most common health problem in both the charts of the suicide group and the control group is the presence of alcohol abuse. Therefore, alcoholism treatment for Alaska Natives should be a

priority in public-health planning. The future of too many young Alaskans is drowning in alcohol. Our data add further weight to the idea that alcohol abuse among Alaska Natives is contributing to the rising toll of death from suicide.

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### References

- Alaska Area Indian Health Services, Health Statistics Section (1985). Summary statistics. Anchorage, AK: Alaska Area Indian Health Service; 1984 Alaska Native Health Board, Inc. Rural health issues study and statewide suicide evaluation project. Anchorage, AK: Department of Health and Human Services.
- Andereggen, D. L., Zangri, A., & Vigue, M. (1990). Alaska Bureau of Vital Statistics Annual Report 1986–1987. Juneau, AK: State of Alaska.
- Barraclough, B., Bunch, J., Nelson, B., & Sainsbury, P. (1974). A hundred cases of suicide: Clinical aspects. *Br J Psychiatry*, *125*, 355–173.
- Blackwood, L. (1978). Health problems of the Alaska natives: Suicide mortality and morbidity. Anchorage, AK: Department of Health and Social Services.
- Conrad, B., & Kahn, M. (1974). An epidemiological study of suicide and attempted suicide among the Papago Indians. *Am J Psychiatry*, *131*, 69–72.
- Division of Public Health, Vital Statistics Research, State of Alaska (1988). Alaska Vital Statistics Annual Report 1985; Juneau, AK: State of Alaska.
- Dorpat, T. L., & Ripley, H. S. (1960). A study of suicide in the Seattle area. *Compr Psychiatry*, *1*, 349–359.
- Durkheim, E. (1951). *Suicide*. New York: The Free Press.
- Fowler, R. C., Rich, C. L., & Young, D. (1986). San Diego Suicide Study II. Substance abuse in young cases. *Arch Gen Psychiatry*, *43*, 962–965.
- Grove, P., & Lynge, J. (1979). Suicide and attempted suicide in Greenland-A controlled study in Nuuk (Godthaab). *Acta Psychiat Scand*, *60*, 375–391.

- Hislop, T., Threlfall, W., Gallagher, R., & Band, P. (1987). Accidental and intentional violent deaths among British Columbia native Indians. *Can J Publ Health, 78*, 271–274.
- Hlady W., & Middaugh, J. (1988). Suicides in Alaska: Firearms and alcohol. *Am J Publ Health, 78*, 179–180.
- Kelso, D., & Dubay, W. (1989). Alaskan natives and alcohol: A sociocultural and epidemiological review. In D. L. Splegler, D. A. Tate, S. S. Aitken, & C. M. Christian (Eds.). *Alcohol use and abuse among U.S. ethnic minorities* (pp. 223–138). Rockville, MD: U.S. Department of Health and Human Services.
- Kettl, P. & Bixler, E. (1991). Suicide in Alaska Natives (1979-1984). *Psychiatry, 54*, 55–63.
- Kinzie, J., Shore, J., & Pattison, E. (1972). Anatomy of psychiatric consultation to rural Indians. *Comm Ment Health J, 8*, 196–207.
- Kost-Grant, B. L. (1983). Self inflicted gunshot wounds among Alaska Natives. *Publ Health Rep, 98*, 72–78.
- Kraus, R. (1974). Suicidal behavior in Alaska Natives. *Alaska Med, 2–5*.
- Kraus, R. F. & Buffler, P. A. (1979). Sociocultural Stress and the American Native in Alaska: An analysis of changing patterns of psychiatric illness and alcohol abuse among Alaska Natives. *Culture, Medicine and Psychiatry, 3*, 111–51.
- Levy, J. & Kunitz, S. (1987). A suicide prevention program for Hopi youth. *Soc Sci Med, 25*, 931–940.
- McIntosh, J. & Santos, J. (1981). Suicide among Native Americans: A compilation of findings. *Omega, 11*, 303–316.
- McIntosh, J. (1983). Suicide among Native Americans: Further tribal data and considerations. *Omega, 14*, 215–228.
- Murphy, G. E. (1983). On suicide prediction and prevention. *Arch Gen Psychiatry, 343–344*.
- Parkin, M. (1974). Suicide and culture in Fairbanks. *Psychiatry, 37*, 60–67.
- Pokorney, A. D. (1983). Prediction of suicide in psychiatric patients. *Arch Gen Psychiatry, 40*, 249–257.
- Robins, E., Murphy, G., Wilkinson, R., Gassner, S., & Kayes, J. (1959). Some clinical consideration in the prevention of suicide based on a study of 134 successful suicides. *Am J Publ Health, 49*, 888–899.

- Roy, A. (1982). Risk factors for suicide in psychiatric patients. *Arch Gen Psychiatry* 39, 1089–1095.
- Shore, J. (1975). American Indian suicide — fact and fantasy. *Psychiatry*, 38, 86–91.
- Travis, R. (1983). Suicide in northwest Alaska. *White Cloud J*, 3, 23.