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"WHEN I AM LONELY THE MOUNTAINS CALL ME": THE IMPACT OF SACRED GEOGRAPHY ON NAVAJO PSYCHOLOGICAL WELL BEING

Trudy Griffin-Pierce, Ph.D.

Abstract: As we approach the twenty-first century, sacred geography continues to have a profound impact on Navajo psychological well being. This article explores the extent of the Navajo's bond with their homeland through an emphasis on orderly conditions in their world view, myths, and ceremonies. When traditional Navajos leave their homeland to pursue educational and professional endeavors or to seek biomedical treatment, a sense of emotional dislocation can undermine their success. The emotional trauma goes far beyond mere homesickness because it is based on an often unconscious sense of having violated the moral order of the universe. It is essential that mental health professionals respond with sensitivity to this issue by understanding the extent to which the sacred mountains and other landforms serve as a vital source of spiritual strength.

When the Navajo were exiled to Fort Sumner, New Mexico after the Long Walk of 1864, the greatest source of trauma was psychological. They saw the harshness of the infertile land with its brackish water only as an indirect cause of their high death rate. The real reason that so many of their people died, they believed, was that they were outside the boundaries of the four sacred mountains, land given them and made safe for them by the Holy People. Their spirits had been broken by each additional mile that they were forced to march farther from their beloved land, especially when they were forced to cross three rivers, all of which the Holy People had warned them never to do.

The Navajos have a word—*ch'ééná*—which describes this kind of heartbreak. *Ch'ééná* means "sadness for a way of life that is gone forever." They say that many Navajos died from *ch'ééná* during their exile at Fort Sumner between 1864 and 1868.

Navajo leader, Barboncito (Correll, 1979, p. 130–32) eloquently described the moral and emotional toll their exile had taken on his people when he made an impassioned plea to General Sherman:

> When the Navajos were first created, four mountains and four rivers were appointed for us, inside of which we should live . . . we were never to move east of the Rio Grande or west of the San Juan rivers and I think that our coming here has been the cause of so much death among us and our animals . . .

When the Navajos at last returned to their homeland, many knelt down to kiss the earth. One elderly lady fainted with joy when she saw Mount Taylor, the southernmost sacred mountain. Francis Toledo (Roessel, 1973, p. 147) said that once "they reached Fort Wingate [near Gallup, New Mexico] many were in a hurry and started taking off, saying, 'We're lonely for our beloved country'. . ."

This degree of attachment to a particular geographic location is difficult to comprehend as we face the twenty-first century. In our increasingly mobile society, most people have already severed their connection with the place where they have grown up; if they return at all, it is to visit friends or family rather than to resume residence. However, geographic displacement is a major cause of psychological distress, not only for Navajo people but for all American Indians and Alaska Natives. Such displacement continues to undermine success in employment, educational programs, and biomedical treatment.

The Importance of Orderly Conditions in the Navajo World View

The Navajo world view is characterized by an emphasis on order, balance, and harmony. Order is so important that disorder is personified in the form of Coyote the Trickster. Coyote is know as "The Patron of Disorder" because of his reckless, selfish, and self-indulgent behavior. His role in the placement of the stars in the heavens is well known. When the Holy People were resting, after having carefully placed most of the stars into orderly groupings of constellations, Coyote impulsively flung the rest of the crystalline stars into the sky. Thus, instead of being positioned in regular and recognizable patterns, the stars that Coyote tossed toward the heavens are scattered everywhere, where they shine as confusing dots of light in sharp contrast to those in constellations which serve as a cultural text, indexing moral stories. Coyote compounded the matter by choosing one star to be his; he succeeded in creating disagreement and confusion over the star's identity; to this day, people still debate whether Canopus is really Coyote's star.

Before the stars could be placed, however, the ancestors of the Navajo had to emerge through a series of previous worlds in a highly structured cosmos. Each of these worlds was ordered and had a particular color associated with it, as well as specific animals and conditions. The cardinal directions in all of the worlds, including the present world, also have their own colors, animal and bird species, jewels, and sacred mountains.

Even the worlds themselves were arranged sequentially in terms of orderliness. Traveling upward, the ancestral Navajos found each successive world to be more orderly and stable than the previous world. The First World—the Black World—was the most chaotic of all; the various beings, including the Insect Beings whose home this was, disagreed and fought among themselves. Because of this quarreling, the ancestral beings climbed up into the Blue World, the Second World. They left this world and the one after it, always seeking a more orderly way of life.

Thus, the concept of order is of tremendous importance in Navajo philosophy: the Emergence process, even through the more chaotic worlds, was ultimately an orderly process. The process of Creation itself occurred *nizhónígo*, or "in an orderly way," as recounted in the Blessingway myth.

Blessingway, a major song ceremonial which includes five kinds of rites, is called "the backbone of all ceremonials" (Wyman, 1983, p. 20); Chanter Long Mustache calls Blessingway "the spinal column of [ceremonials]" (Wyman, 1970, p. 5). Every ceremonial includes a Blessingway song to ensure effectiveness and to correct any unintentional mistakes. Used to protect livestock, bless a new hogan, send a girl into womanhood, and consecrate marriage, the Blessingway rite or songs and/or prayers taken from it ensure "good hope" and obtain the blessings necessary for a long and happy life.

The Blessingway myth tells the story of Creation, including how the Creator group of Holy People thought, planned, and sang the world into existence. This orderly process could not be rushed if it was to be done properly; First Man and First Woman had to build a sweathouse in which to discuss the conditions they wanted to create before they could proceed. Then, with great care to follow the proper sequence of prayers and procedures, the Holy People constructed a hogan in which to discuss the needs of the people and to plan and organize more completely exactly what they would create to meet those needs. After they had sung the chief hogan songs, they sang the songs of Earth's Inner Form. All natural phenomena were lifeless until inner human forms and wind souls were placed within them to animate them with life force. After the Holy People blew sacred tobacco in all four directions, the sun's inner form, the moon's inner form, and the inner forms of the sacred mountains were clothed, each in a distinctive manner. The inner forms must be described in the proper order: the sacred mountain of the East—Blanca Peak—must be mentioned first, followed by Mount Taylor in the South, then San Francisco Peak in the West, and finally, Hesperus Peak, the sacred mountain of the North.

Chanter Slim Curley (Wyman, 1970, p. 127–128) described the clothing of each inner form in great detail, beginning with the inner form of Blanca Peak, who

> . . . clothed himself in dark cloud, male rain, dark water. At his soles he laid a pair of rainbows, tips reversed . . . And he covered himself completely with pollen, after which he clothed himself in white shell and in all sorts of fabrics . . . white buckskin . . . crocheted dark yucca bast . . .

The inner forms of Mount Taylor, San Francisco Peak, and Hesperus Peak are then described with equal attention to specific detail which varies according to the particular mountain and its direction. All other aspects of Creation are ordered as well, down to the most minute detail. An exclusive feature of the Blessingway is the mountain soil bundle which contains pinches of soil from the summits of the sacred mountains. This is the only religious paraphernalia required for the Blessingway rite.

Another aspect of orderly and proper conditions is the concept of complementarity. Anglos conceptualize day and night as a pairing of opposites; Navajos see day and night as parts of the same entity, with each half necessary for completeness. Like the Asian concept of yin and yang, neither component is morally better than the other; rather each component is incomplete without the other to balance it. Male and female, life and death, and *hózhó*—all that is good and harmonious—and *hóchxó*—that which is evil and chaotic are paired as complementary states. The universe thus consists of complementary components, all of which are interrelated and interdependent.

These components make the universe an orderly place which operates according to rules of reciprocity that govern humanity's relations with the natural and supernatural worlds; this belief lies at the core of Navajo religious and medical philosophy. When humans treat the Holy People and the universe they created with respect, the Holy People provide for the Earth Surface People, as the Navajo call themselves. The Holy People are also compelled to respond when their help is asked for in the proper manner. It was the Holy People who gave the country bounded by the sacred mountains to the Navajo people; by remaining within this homeland, the Navajo show their respect and appreciation for this precious gift of land. Within these boundaries, the efficacy of their ceremonies are ensured as well as their general prosperity.

The Navajo Sense of Place

N. Scott Momaday (Griffin-Pierce, 1992, p. xv–xvi) described his amazement when a Navajo hitchhiker was able to name every mountain, mesa, butte, and wash in the vicinity:

> I never encountered a more highly developed sense of place. I was left with the impression that this individual was exactly where he belonged: he could never be lost, for he knew precisely where he was in relation to this rock, that tree, that range of mountains in the distance, the sun and moon and stars. He stood at the very center of Creation.

Such a finely tuned sense of place means that being forced to leave one's homeland results in psychological trauma that is unimaginable to those of us without such geographic attachments. Depending upon such factors as the degree of acculturation, the viability of frequent travel home, and the strength of the social network, a Navajo individual experiences varying degrees of psychological distress in an off-reservation setting. Some individuals easily cope with life "off the rez" while others may find that their initial discomfort gives way to a sense of bleakness which culminates in catastrophic feelings of hopeless despair. Far from mere homesickness, such feelings are based on an unconscious sense of having violated the natural and moral order in a culture which reifies order. Such stress is profound and unrelenting for traditional Navajos.

"Modern" Navajos—those who have adopted a Western lifestyle—may still occasionally experience this kind of emotional desolation; a Navajo professor at a major university in the Southwest confided, "When I am lonely, the Mountains call me" (Griffin-Pierce, 1992, p. 199). Being outside of the boundaries of the four sacred mountains means being away from a vital source of spiritual strength.

Examples abound of Navajo ties to their homeland, but this kind of spiritual dislocation when moving to a city to further employment or educational opportunities is certainly not unique to the Navajo. When anthropologist, Keith Basso interviewed Western Apache individuals, linguistic cousins to the Navajo, they described how their land always "stalked people" with stories that pierced their hearts like arrows and thus kept them on a path of moral strength and emotional well-being. For example, Wilson Lavender (Basso, 1984, p. 4) recalled attending mechanic school in Los Angeles as a terrible period during which he drank and fought with his wife. He attributed this not to a loss of his social network, but rather to forgetting the place, names, and stories associated with specific places at Cibicue, Arizona. The primary reason, he said, was that he no longer heard, "the names and stories . . . in my mind anymore. I forget how to live right, forget how to be strong."

Benson Lewis, another Cibicue Apache man, went into greater detail by explaining that he thinks "of that mountain called 'while rocks lie above in a compact cluster' as . . . my maternal grandmother." (For the matrilineal Apache and Navajo peoples, one's maternal grandmother is particularly revered and beloved.) By recalling stories evoked merely by hearing a mountain's name, Mr. Lewis sees the mountain in his mind; the stories surround him, bringing moral strength.

The Navajo universe is equally filled with significant land forms that are the sites of mythic incidents that invest these land forms with great emotional meaning and enduring psychological significance, bonding the Navajo to their homeland. Each of the four sacred mountains has its own story of mystical creation, its own spiritual powers, and its unique purpose in relation to the Diné.

Other landforms index moral stories that remind the Navajos of the proper way to live their lives. A good example is Bear Ears, west of Blanding, Utah. A beautiful woman kept house for her twelve brothers and led a decorous life. Coyote asked her to marry him, but she gave him a series of tests she thought Coyote could not possibly succeed in overcoming. However, through his evil magic, Coyote overcame each of her challenges. The woman was forced to keep her promise by marrying Coyote, whose evil and devious ways soon contaminated her. His qualities of impurity and filth became her way of life and she became known as Changing Bear Maiden because of her ability to transform herself into a bear. She killed all but the youngest of her beloved brothers. With supernatural help, the remaining brother killed his sister, transformed her back into human form, and restored their brothers to life. The landform known as Bear Ears tells of the triumph of good over evil and stands as a reminder of a girl who lost control of her human faculties; in essence, she allowed herself to be overcome by the forces of disorder embodied in Coyote (Wyman, 1973, p. 99–102).

Navajo Mountain, a distinctive land form in southern Utah, is known as *Naatsis'áán*, "Head of Earth Woman." Monster Slayer and Born-for-Water—the Sacred Twins—made the earth's surface safe for humans by killing the monsters. The enemy gods on San Francisco Peaks tried to enslave Monster Slayer by firing projectiles tipped with spruce and juniper at him at this birthplace, Navajo Mountain. Monster Slayer caught these projectiles, planting them as trees on the slope of the mountain. Navajo Mountain thus became a shield for the Navajo people, who invoked the power of Monster Slayer as they hid in its recesses when Kit Carson and his troops were rounding up the Diné to send them into exile at Fort Sumner. Today, chanters perform Protectionway and Blessingway to protect soldiers during wars and to ensure adequate food, beneficial power, and an abundance of livestock for the people (Floyd Laughter in Luckert, 1977, p. 31, 48–49, 53).

Outside the Boundaries of the Sacred Mountains

What happens when Navajo students leave their homeland for the first time to attend college? They are subject not only to the unrelenting stress of culture shock that comes of facing an unfamiliar culture, but they also experience a, perhaps unconscious, stress of going against sacred teachings by leaving their homeland, a place given their people by the Holy People.

Navajo students in the university classes I teach—especially the more traditional Navajos—often experience such stress. One such student, whom I shall call Belinda Chee, was assigned to a summer school class, "Introduction to Cultural Anthropology and Linguistics." As a participant in a special program designed to ease the transition from high school

to a university setting, Belinda was expected to undergo placement tests to see at what level she should be placed in English and mathematics. However, on the day of the testing, when all the other students in the dormitory were taking these tests, Belinda stayed in her room without inquiring why the dormitory was deserted.

Belinda, the youngest daughter in a traditional family from Dilkon, Arizona, had excelled in her high school classes on the reservation and was honored when her mathematics teacher encouraged her to apply for a scholarship to the University of Arizona. However, once she arrived on campus, anxiety began to set in. At first, she could still function and respond appropriately to questions from her peer advisor in the dormitory and to the roommate who had been assigned to her; but soon her answers became wooden and automatic, unconsciously designed to please the questioner, thus shortening the interaction. As the first day wore on, she felt engulfed by a flood of unfamiliar experiences and expectations; each person had something new for her to remember; everything, including her own responses, felt out of her control. She was a stranger even to herself. As the new experiences accumulated, her sense of acute anxiety and emotional paralysis increased. She was barely able to sleep the first night; when she awakened the next morning, the day of the placement testing, she had a pounding headache that only increased as the day wore on. Rather than ask where everyone was going, Belinda stayed in her room, grateful for the opportunity to be alone.

Nothing was the way she had expected it to be. She could tell that people were trying to be friendly, but it was as though they spoke to her through thick glass; their good intentions could not begin to thaw her emotions. She was outside the boundary of the sacred mountains and nothing could change that. A sense of bleak hopelessness permeated her entire being; this was wrong, her being here, outside the land the Holy People had given the Diné. Now, not even the Holy People could help her. For the first time in her life, Belinda felt totally isolated, removed from anyone's assistance.

Belinda chose a desk at the very back of the classroom, where she remained in self-imposed isolation, ignoring the overtures of other students. When it became clear from her test results that she had not studied for the first quiz (which had been announced the previous week), I suggested, in private conversation, that she form a study group with the two other Navajo students in the class. Her eyes widened in surprise, and she said with amazement, "There are other Navajos here?" We were two weeks into the semester, and the 25-member class had been meeting for three hours everyday, yet Belinda appeared to be completely unaware of her surroundings, including the presence of the other students.

Despite this suggestion, Belinda appeared to be too frozen with fear to approach these students. She continued to remain completely disengaged from class discussions and activities as well as those of the

larger transition-to-the-university program. Belinda's mother took the bus to attend Parents' Day. An articulate woman, she waited until we were alone and asked how her daughter was doing and, as gently as I could, I outlined Belinda's difficulties. Her mother expressed misgivings that her daughter might not be ready to be away from her homeland.

Belinda performed poorly on the midterm exam, answering questions incoherently and confusing terms and concepts. She continued to withdraw, not handing in written assignments and not participating in group discussions. I spoke with her privately to ascertain if she understood the assignments which were contained in the syllabus she had received at the beginning of the semester. At times, Belinda expressed amazement, even though I had been discussing the assignments in class for weeks. She responded in a dazed, frozen state of total estrangement from her surroundings. Belinda continued to display an inability to concentrate: during lectures, she alternated between an unfocused, faraway gaze and cradling her head, face down, on folded arms. Her despair only seemed to deepen as the weeks wore on. Eventually, I suggested that she withdraw from the university before her academic record would be affected.

Navajo students in the "Native Peoples of the Southwest" class I teach during the fall and spring semesters have usually adapted better to being away from their homeland. A student I will call Rose Deschinny, from Rough Rock, Arizona, however was one who took somewhat longer to adapt. She had just transferred to the university after a semester at Navajo Community College in Tsaile, Arizona and was finding the leap to off-reservation school extremely difficult. Rose, however, did come to see me during my office hours. (This was fortunate because the class of 165 students met twice weekly in a large auditorium, and I did not have time to make individual overtures to students.)

In Navajo style, Rose kept her eyes averted during our conversation in my office. Instead of explaining the specifics, she said only that she would be missing a week of class because she had to go home. I asked if it was because she needed a ceremony; I could barely hear her soft-spoken response: yes, she'd left home without the proper preparation and bad things had been happening. When I realized that she would not ask me directly for help, I asked if there was something I could do "to help out." Only at this point did Rose begin to express anxiety over her understanding of class material. When I realized that she was seeking help, I spent some time going over the material we had covered, helping her to identify major topics and significant issues. I suggested that she take her textbook with her, since she would be gone over a week, and she would have some spare time. After she returned, we could meet and review the lecture material and go over the reading assignments. Rose seemed relieved that a solution was possible.

By the time Rose returned (a period of somewhat longer than she had projected) the veil over her spirits had lifted. She spoke with greater

assurance and seemed calmer about a positive outcome in class. She had been studying in the interim and had borrowed class notes from another student. There was little I could add to her grasp of class material. Rose went on to turn in an "A" term paper and to earn a "B+" in the course.

A student in another anthropology class, Eileen Laughter was considerably more outgoing than either Rose or Belinda. She made friends with another Navajo student, Sylvester Begay, and the two sat together in the classroom. Both Eileen and Sylvester dressed in the same style as the other students, in baggy jeans and T-shirts. (In contrast, Rose and Belinda had worn more conservative clothing than their classmates.)

Eileen and Sylvester were alert in class and participated in discussions. Furthermore, on exams, they performed comparably to their peers. However, the day of her scheduled oral term paper presentation, Eileen apologetically told me she was not ready and could she be rescheduled; she needed to go home. Sylvester was also unprepared, but he decided to go ahead and speak about witchcraft in Navajo culture instead of the topic he had previously selected. As acculturated as these two students appeared to be, both in behavior and in appearance, their traditional beliefs were still deeply held. Later, I discovered that Eileen had needed to return home for a Blessingway in order to restore the balance in her life. Sylvester's presentation on witchcraft had been spurred on by questions from other students; wanting to be popular, he chose the most sensational topic possible. After his presentation, he disappeared for a week; he, too, had needed to return home for a ceremony "to bring back the harmony." Eileen was able to complete the semester, but Sylvester withdrew and returned the following semester.

It is not uncommon for Navajo students to go home for a ceremony. Ceremonies set right the state of imbalance caused by violating ritual norms; underlying and exacerbating such conditions is the fact of geographic dislocation. Although they might have needed the same ceremony had they remained at home, it is necessary for them to return home to restore balanced and orderly conditions: to be effective, Navajo ceremonies must be conducted in the Navajo homeland.

Such trauma is heightened when combined with the sense of physical and emotional vulnerability that accompanies severe illness. When a traditional Navajo must seek treatment at an urban biomedical facility not only must he or she contend with alien surroundings—Navajo healing ceremonies are held on the earth floor of the family hogan, a vastly different setting from the sealed, air-conditioned world of a modern health care facility—but the patient must also contend with an underlying sense of chaos and unpredictability because of being outside the boundaries of the four sacred mountains. Treatment within the boundaries of their sacred homeland has the blessing of the Holy People; the same natural order and power of the universe which supports the stars, the moon, and the sun in their orderly, predictable paths across the heavens also works on behalf of

the patient as long as he or she is within the boundaries of the sacred mountains. When the Holy People gave the Diné this land, they also created special plants for the healing of certain illnesses. Following these sacred prescriptions—including seeking treatment within the boundaries of Navajo country—enables the patient to work with the natural order of the universe; seeking treatment outside these sacred geographic boundaries plunges the endeavor into danger and uncertainty.

The dramatic mesas and mountains of Navajo country index some of the most powerful and important teachings in Navajo philosophy. Ultimately, the land acts as a visual text which encodes the core perceptions of life. Being outside the boundaries of this sacred land which was given the Navajo by the Holy People is against the natural order of things. Each person must make his or her peace with living away from the sacred text of the landscape. Some do this by becoming acculturated and integrating themselves into the Anglo world; many return home periodically to renew their ties with their geographic and human relatives. In this way, they reestablish the state of orderly and blessed conditions known as *hózhó*.

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PATTERNS OF INJURY MORTALITY AMONG ATHABASCAN INDIANS IN INTERIOR ALASKA 1977–1987

Helen B. Andon, Ed.M.

Abstract: It was found that almost one-half of all Interior Alaska rural fatalities from thirty-six villages are due to unintentional and intentional injury. Drowning, motor vehicle crashes, hypothermia, fire, carbon monoxide poisoning and air transport crashes accounted for over 32% of all deaths; suicide and homicide account for over 15%. Many of these deaths are preventable.

DOYON, Limited is one of twelve regional Alaska Native corporations formed as a result of the Alaska Native Claims Settlement Act of 1971 (ANCSA). As a regional Native corporation, its primary function is to manage the region's monetary settlement of ANCSA and invest in profit-making ventures. Native residents of interior Alaska are, for the most part, enrolled in DOYON, Limited as shareholders of the corporation.

A non-profit social services entity, the Tanana Chiefs Conference, Inc. (TCC), was incorporated in 1971 as well. DOYON shareholders are generally eligible for services provided by TCC.

Tanana Chiefs Conference initiated a health care program in 1973. Passage of the Indian Self-Determination and Educational Assistance ACT (PL 93-638) and the Indian Health Care Improvement Act (PL 94-437) in 1975 and 1976, respectively, expanded available opportunities for local management and control (Tanana Chiefs Conference, 1988–1992). At that time, TCC's Health Services Department changed its emphasis from planning and advocacy to the actual delivery of services.

The first village-oriented Accident Prevention Program, as it was then called, was started by TCC in 1975. That program, now referred to as Community Injury Control (CIC), continues today under the guidance of the Health Education Department, providing services to 30 of 36 villages.

The racial composition of the TCC service delivery area is predominately Athabascan Indian. TCC region villages range from nearly 100% Native to a few villages in which non-natives predominate. A general rule, however, is: the smaller the village, the higher the proportion of Alaska Natives who reside there.

Villages range in size from 37 people (Birch Creek) to over 1,000 (Galena) and are spread over an area larger than the state of Texas. Most of these communities are accessible only by boat or by airplane.

The Problem

In an effort to guide planning and development, the Tanana Chiefs Conference formulated ten health goals and specific objectives to be achieved during the five-year period, 1988–1992. This study was conducted as part of the implementation of one of those goals: to reduce the accidental death rate among the Tanana Chiefs Conference population.

The specific objective associated with this goal is to reduce the accidental death rate from a five-year (1981–1985) average of 160.7 per 100,000 to 135 per 100,000 by 1992 (Tanana Chiefs Conference, 1988–1992). (This rate includes the urban population).

To meet this objective, specific information concerning the pattern of mortality in the villages had to be obtained. TCC Community Injury Control provides services to thirty villages. The program, however, does not have a reliable injury control surveillance system and it is unknown whether or not the 6,041 Alaska Natives served by TCC exhibit the same mortality patterns as the TCC urban/rural Alaska Native population of approximately 12,000.

Although there are difficulties in presenting crude mortality rates when working with small populations such as TCC's, comparisons will be made between American Indians and Alaskan northern regions. The comparisons are made keeping in mind that isolated incidents have a disproportionate effect on mortality rates (see Table 1).

Limitations

The Alaska State Bureau of Vital Statistics does not always accurately record the date of death, the village of residence, race or cause of death. By comparing data from Vital Statistics to the regional Native corporation shareholder records, discrepancies were noted and corrected. Appendix A lists instances where data provided by the State do not correspond to the cause of death reported to the author by a Community Health Aide and/or family member.

Additionally, it was often difficult to verify places of residence. There are 178 fatalities on the DOYON deceased rural shareholder records which do not appear on the Bureau of Vital Statistics records. Further inquiry disclosed that 188 of those individuals were not village residents; 38 were, but some died in an Anchorage or Fairbanks facility. In four cases of drowning, bodies were not recovered, and consequently, were not included in the Bureau's report. Of the 22 remaining, the individual's place of residence and place of death could not be verified. To be conservative, they were not included in this study. There were another 20

Table 1
Leading Causes of Death in Interior Alaska, by Race, Five Year Average, 1981–1985. Mortality Rates per 100,000 population by Race of Descendent

	Native		Non-Native		Total	
Cause of Death	**Rank**	**Rate**	**Rank**	**Rate**	**Rank**	**Rate**
Heart Disease- Hypertension	2	87.4	1	81.2	1	82.1
Accidents	1	160.7	2	63.3	2	76.9
Malignant Neoplasms	3	77.6	3	62.7	3	64.7
Suicide	5	34.1	4	13.7	4	16.5
Homicide	7	27.9	5	11.2	5	13.4
Alcohol Diseases	4	36.2	7	8.4	6	12.2
Pneumonia & Influenza	6	33.5	6	8.7	7	12.1
Congenital Anomalies	8	18.0	8	7.8	8	9.2
Perinatal Period Conditions	9	9.5	9	5.9	9	6.4
All Causes	—	655.1	—	338.7	—	381.8

Source: Tanana Chiefs Long Range Plan, Book II-87, 1988.

injury deaths for which the cause was unknown, creating the Unspecified and Other Injury category.

Limitations on the completeness and accuracy of Vital Statistics data noted are relevant to this document. Other studies have reported similar limitations when using state statistics. Marshall and Soule (1988) report that of 215 accidental deaths recorded by the Bureau of Vital Statistics, only 164 were actually accidental. Of the disparity (51), forty were mis-recorded, three were double-counted or non-human remains and eight reported as accidents were determined by the authors to be suicides. An additional thirty-seven deaths recorded in the coroner's files (but not reported in the Bureau's printout) were added to the 164 for a total 201. It is likely that errors such as these also occur in the Bureau's report of fatalities within the Tanana Chiefs Conference region.

Background

Injury Prevention

The relationship between psychosocial variables and injuries has been examined by Langley (1984) who highlights common methodological problems as well. He argues that research of this nature has little potential for being translated into practical countermeasures and, as such, should be accorded low priority.

Pless and Arsenault (1987) contrast studies that emphasize changes in knowledge or behavior to prevent childhood injuries with studies that report actual reductions in injuries. The most successful programs are those based on social learning principles and those that combine education with legislative change or modifications in regulations.

That a reduction of disability and/or death from childhood injury can be achieved through structural modification by making environments less permissive is argued by Wilson and Baker (1987). The structural approach suggests preventive strategies, but stresses that the strategies must not require frequent individual action and should not depend on the behavior of the children. Because of the high cost of living in Alaska, especially in the rural villages, federal poverty guidelines are unrealistic. A significant proportion of rural Alaskans live in poverty (Northern Alaska Health Resources Association, 1985).

Robertson (1985) states that in exploring risk factors for severe injury among American Indians, one should look to general explanations for severe injury among people with low incomes in rural areas.

Nationally, injuries rank fourth among the leading cause of death after heart disease, cancer and stroke. They represent the leading cause of death for people between 5 and 44 years of age, accounting for the most potential years of life lost to society for those under 65. Motor vehicle crashes are a prominent cause of preventable injuries. Failure to use seat belts, reckless driving, speeding, and substance abuse are the most common and preventable risk factors. But, they are the toughest to change in comparison to vehicular and road design modifications. The 55-mile-per hour speed limit, together with campaigns to raise awareness of the dangers of drinking and driving and to popularize the child restraint laws and seat belt laws reduced the motor vehicle death rate by nearly one-fifth between 1973 and 1987 (McGinnis, 1988).

Mortality Patterns

Literature on injury control and risk factors leading to fatalities in Alaska is virtually non-existent. However, there are publications that do address the mortality patterns.

The Northern Alaska Health Resources Association published an Accident Prevention Plan (1981). It reported the findings of an Accident Prevention Task Force which analyzed statistical indicators of the nature and extent of accidental death in northern Alaska. For the purposes of their work, northern Alaska included the population of the Fairbanks North Star Borough, the interior (Tanana Chiefs Conference region), Maniilaq (Kotzebue and the surrounding area) and the North Slope Borough (virtually the entire population north of the Brooks Range).

Due to the difficulty in obtaining accurate data on non-fatal injuries, the Task Force used mortality statistics because they are more reliable

than injury statistics. "Causes of death and death rates within any population tell a great deal about the health of the people. They are also indicators of larger numbers of people who suffer from the same problems but to degrees which do not cost their lives" (Northern Alaska Health Resources Association, 1985, p. 94). Highlights of their report indicate:

> There is a marked variation among regions relating to injury mortality. Maniilaq (Kotzebue area) has an accidental death rate 530% higher than the U.S. rate of 47.9/100,000 and 250% higher than the all-Alaska rate of 92.9. The Tanana Chiefs Conference rate is 480% above the U.S. rate and 220% above the state. The North Slope and Fairbanks North Star Boroughs are similar to the all-Alaska rate, but exceed national averages by over 200%.
>
> In each region, males are more likely than females to suffer accidental death. The male-to-female ratio tends to be approximately four to one (p. 110).

Alaska Natives experience a larger percentage of accidental fatalities than their proportion of the population would suggest. In 1981, Natives accounted for 38.8% of all injury deaths while representing only 20% of the population.

Fire Safety

Homes in interior Alaska are typically of log or frame construction. Bedrooms are built to one side or partitioned from the main living area by curtains. Kitchens are not separated from the living area. Most homes are heated by wood or oil-burning stoves located in the central living area.

The Alaska Council on Science and Technology Fire Safety Task Force conducted a 1982 study of smoke detectors in rural areas. The purpose was to identify the best detector for rural homes. Ionization and photoelectric detectors were placed in six villages. Five homes in each village tested three different types of detectors. In total, ninety were considered.

No one type tested superior to another. The ionization detectors tended to respond to cooking activities more often than those of the photoelectric variety. It was found that attitude was the overriding factor in determining the acceptance and effectiveness of the units. That is, type was not as important as the feelings of the household relative to fire, false alarms and smoke detectors in general. It was apparent that residents were willing to tolerate a large number of false alarms because of their belief in the life-saving value of the detectors (Alaska Council on Science and Technology, 1982).

The Task Force recommended that smoke detector portions of future fire safety programs emphasize both education and instruction. Village coordinators of the project, however, did not believe their programs had much effect in heightening the awareness of the general populace to

the usefulness of the instruments (Alaska Council on Science and Technology, 1982).

Violent Deaths

Suicide and homicide comprise the category of violent death, or intentional injury. The implementation of strategies that automatically protect people can be extended to intentional injuries as well as unintentional (accidental) injuries. Many, perhaps the majority, of homicides and suicides are impulsive acts which would not necessarily be repeated. It is the lethal nature of the method at hand more than the planned intent of the people involved that results in death (Robertson, 1983).

Suicide. A comparison of 1970 and 1980 data related to the suicide rate of Alaska Natives indicated an average annual *increase* of 58% (Institute of Social and Economic Research, 1986). This too is a continuing and growing concern.

Travis (1983) reported that the Alaska Native suicide rate (90.9 per 100,000) between 1975 and 1979 in Northwest Alaska was more than seven times the national average. Factors related to this behavior were identified as alienation, loss of family, low income, alcohol abuse, high unemployment and lack of education. The average age of victims was 22.5 years.

According to Fisher (1981), Alaska has one of the highest rates in the nation for depression, alcohol, drug abuse, and adolescent suicide. A study of forty adolescents referred to a treatment center was conducted by Fisher. The report maintains that a rapid change of lifestyle has resulted in a loss of community and cultural identity. Additionally, a disintegration of family life affects both Native and non-native children. The transient population and harsh climate were also factors in suicidal behavior.

Marshall and Soule (1988), in their study of suicides in southwest Alaska, found the population most at risk to be single males between the ages of fifteen to twenty-nine. They account for 73% of thirty-eight cases of suicide studies.

A study by the Alaska Native Health Board found that during the 1960s, 25–34 year old males were the highest at-risk group for suicide. During the early 1970s, the same group remained highest, but the 15–24 year old males increased disproportionately. By the early 1980s, the highest at-risk group had become the 15–24 year old Alaska Native male (Alaska Native Health Board, 1985).

Homicide. The 1987 National Adolescent Student Health Survey assessed the extent to which adolescent U.S. students may be at risk for several health problems as well as their perceptions of those risks. The survey included questions on unintentional injuries, fighting and violence, and suicide. Although it does not address homicide, it points to activity which could lead to homicide.

Forty-nine percent of the boys and 28% of the girls reported having been in at least one physical fight during the past year. Twenty-three percent of the boys said they had carried a knife at least once during the past year, and 7% daily (Morbidity and Mortality Weekly Report, 1989).

During the years 1979–1983, homicide was the sixth leading cause of death in Alaska. Homicide rates in the rural areas of the TCC regional are 50% higher than those in the urbanized Fairbanks North Star Borough and nearly 50% higher than the statewide average (Northern Alaska Heath Resources Association, 1985).

Alcohol. Alcohol was directly involved in two-thirds of the suicides for both sexes in the Marshall and Soule (1988) study. Abusive use of alcohol, while not the topic of this report, must be considered a causal factor in many of Alaska's accidental or intentional injury and/or self-destruction.

Waller (1984) suggests the use and abuse of alcohol is probably the most consistent human factor identified in serious unintentional injury, whether it takes place on a road, in the home, at public places, or during recreational activity. It also contributes heavily to the occurrence of assault, homicide, and suicide.

However, an emphasis on alcohol as the single cause of injury may be counterproductive. Robertson (1985) states there is no objective evidence which supports the claims that the excess of injuries among American Indians is almost totally the result of heavy use of alcohol. Although alcohol impairment may increase the probability of drowning, starting a fire or being unable to escape a fire, falling, or being injured while using mechanical items, alcohol is not a complete explanation of these forms of injury.

In alcohol and motor vehicle crash studies, it was found that alcohol does contribute to incidence but plays a larger role in severity of injury. Possible reasons are: (a) alcohol increases reaction time to hazards, (b) alcohol increases aggression in driving, and (c) the probability of surviving the crash is reduced by alcohol's effect on resilience or medical treatment. How much each contributes to the alcohol-related crash is unknown (Robertson, 1985).

In Alaska, alcohol involvement in fatal motor vehicle accidents ranged from 52% to 73% between 1979 and 1982, averaging 66% for the period. For juveniles, 74% of all motor vehicle fatalities were alcohol related. In addition, almost 84% of all 1980 homicides in the state were alcohol-related (Northern Alaska Health Resource Association, 1985).

Methods

DOYON, Limited

Confidential records relating to existing and deceased shareholders maintained by DOYON, Limited were analyzed. Data contained information on: (a) name of shareholder, (b) name of deceased, (c) address, (d) social security number, (e) birth date, (f) date of death, (g) sex, (h) status within the corporation, (i) Native status, and (j) village enrollment.

The entire listing served as the denominator population. After manually eliminating out-of-region and non-Native shareholders, the 1981 population, ages 5–65 was calculated to be 6,041. This is very close to the 1980 census information (which includes ages 0–4) of 6,600 rural residents.

Bureau of Vital Statistics

Vital Statistics provided computer information listing all deaths, Native and non-Native, by year (1977–1987) within the DOYON/Tanana Chiefs Conference region. The information contained ICD E codes for external causes of injury. Data for 1987 were provisional, however, and did not include fatality coding.

TCC Community Health Aides

After comparing the DOYON, Limited and Vital Statistics information, there were 289 cases which required clarification or additional information:

1. Place of actual residence versus place of death. If the person was a DOYON shareholder and not residing in a village, they were not included in the study.
2. Clarification on fatality incidents such as "environmental cold."
3. Clarification of deaths listed as "other cause."

Tanana Chiefs Conference has Community Health Aides in many of its villages who were especially helpful in providing or corroborating much of the information required.

Assessment

Mortality patterns were assessed according to gender, age, cause of death, and, in the violent and drowning cases, the residence of

the deceased. To provide consistency, the following age groupings used were: (a) 5–14, (b) 15–24, (c) 25–44, (d) 45–64, and (e) 65+ (Tanana Chiefs Conference, 1988–1992).

Fatalities were then grouped into categories for ease of data handling and reporting: (a) violent death; (b) homicide; (c) suicide; (d) unintentional [accidental] death; (e) drowning; (f) hypothermia with and without ETOH; (g) vehicle; (h) fire; and (i) unspecified, including firearms and air transport.

Results—Mortality Pattern

The Tanana Chiefs Conference mortality pattern from 1977–1987 is divided into three categories: non-injury, unintentional, and violent. Almost one-half of all deaths are caused by intentional or unintentional injuries (see Figure 1).

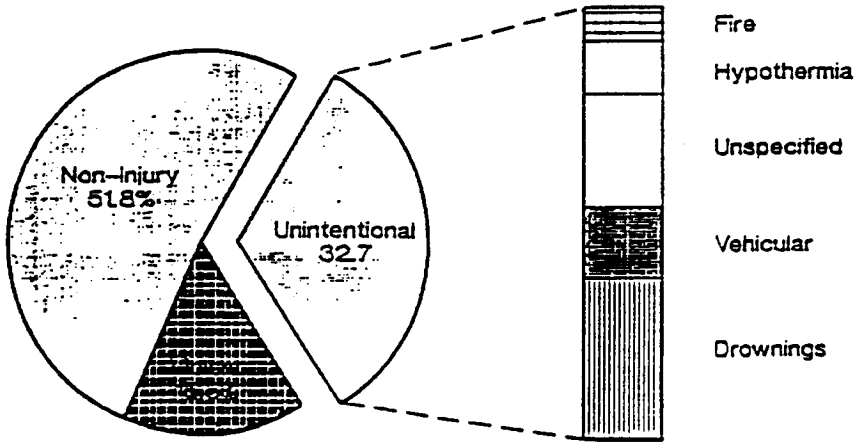

Figure 1
Mortality Pattern—Tanana Chiefs Conference Region, 1977–1987.

The Northern Alaska Health Resources reported a male/female accidental death ratio of four to one. The DOYON/TCC 15–24 and 25–44 age groups exhibit the same ratio for all reported deaths. However, the 5–14, 45–64 and 65+ age groups present a male/female death ratio of approximately one and one-half to one (see Figure 2).

Injury Deaths

Unintentional deaths examined by age indicate that the 25–44 age group is most at-risk for injury-related fatalities, with the 15–24 age

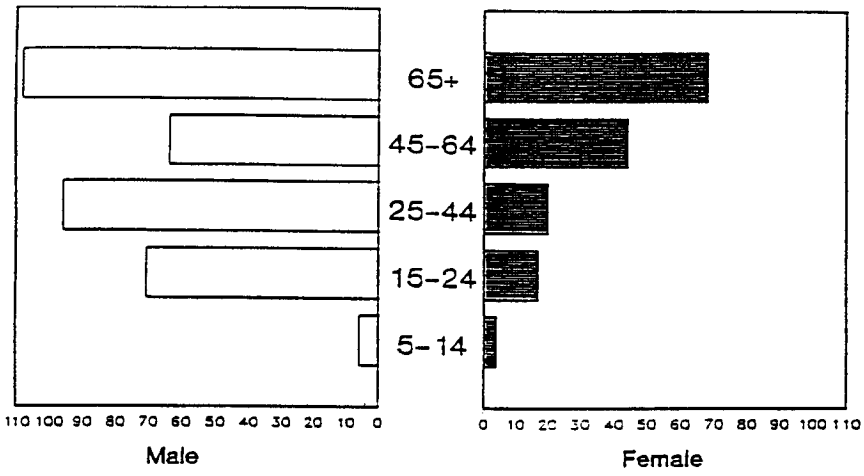

Figure 2.
Number of Deaths from 1977–1987 DOYON Limited,
Interior Alaska Shareholders.

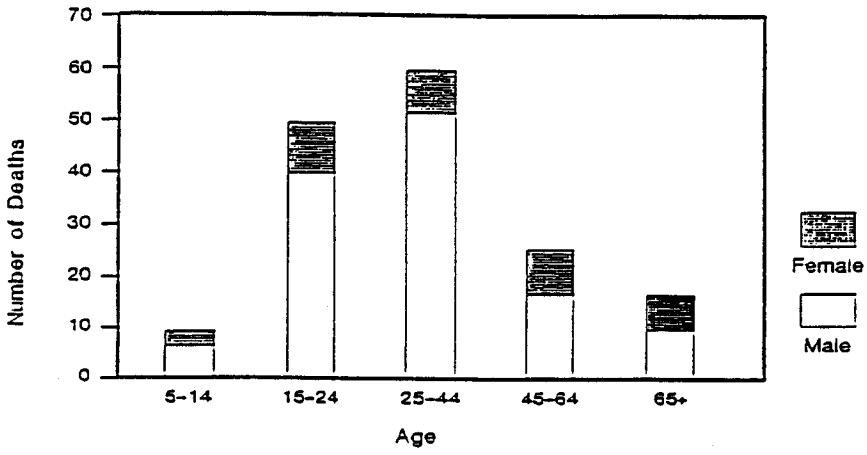

Figure 3
Unintentional Injury - Tanana Chiefs Conference Region, 1977–1987.

group a close second. As expected, there is a considerable decrease in injury deaths among the 45–65+ age bracket (see Figure 3).

Drowning claimed 54 males and 12 females, resulting in a rate of 121.3 per 100,000. No other unintentional injury claimed as many lives (see Figure 4).

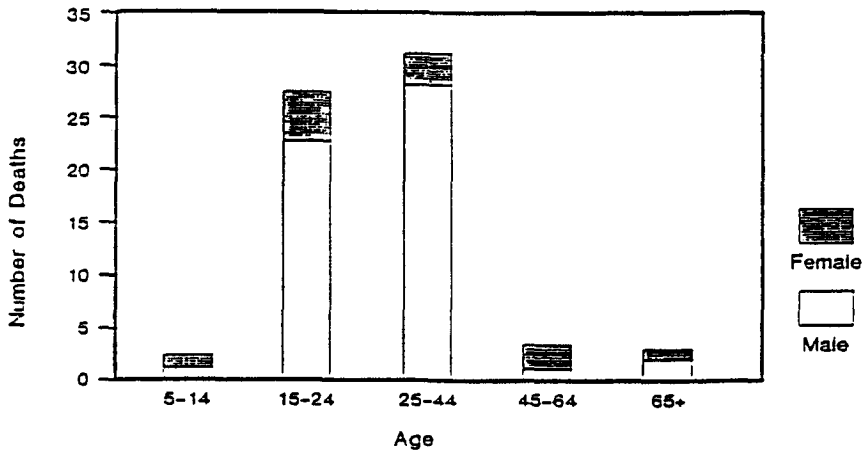

Figure 4
Drownings—Tanana Chiefs Conference Region, 1977–1987.

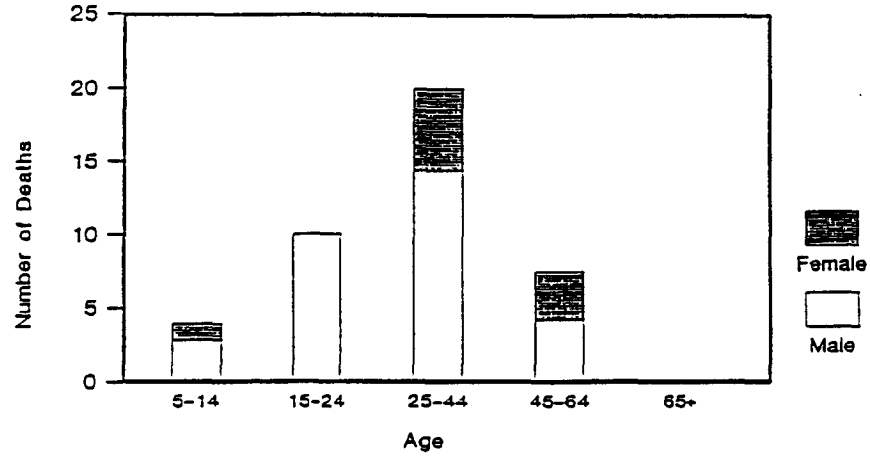

Figure 5
Unspecified Injury Deaths—Tanana Chiefs Conference Region, 1977–1987.

The second category, unspecified and other injury deaths, includes one firearm accident, one hypothermia without ETOH, five gas or vapors poisoning and fourteen air transport deaths. Twenty-seven deaths were due to an unspecified injury (see Figure 5).

Vehicular-related deaths among eighteen males and seven females was the third category. Pedestrians hit by a motor vehicle (including snowmachines) accounted for seven deaths. There were no pedestrian

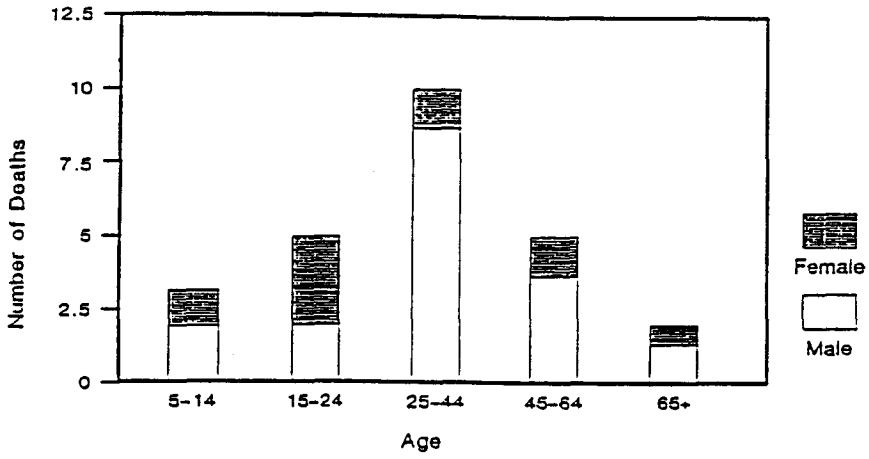

Figure 6
Motor Vehicle Deaths—Tanana Chiefs Conference Region, 1977–1987.

fatalities between ages 11–33 during the study period. The occupant mortality rate was 38.6 per 100,000 and the pedestrian rate was 5.5 per 100,000. Both occupant and pedestrian fatalities are presented on the above chart (see Figure 6).

Hypothermia fatalities are listed by Vital Statistics as "environmental-cold." Because Alaska Native people have developed successful cold weather survival skills which are learned by children at an early age, cold-related deaths required further investigation. Community Health Aides indicated that in every instance except one, hypothermia fatalities were alcohol-related. Of 20 cases, 19 people were observed drinking and later found dead by exposure to cold. The one non-ETOH hypothermia death occurred on a trapline. The hypothermia rate was 16.5 per 100,000 (see Figure 7).

Fire-related deaths claimed nine males and one female, resulting in a rate of 27.5/100,000. The ten deaths occurred in five villages: Allakaket, Nikolai, Northway, Shageluk and Telida. Thirty percent of the male deaths occurred in one village, twenty percent in another. One incident claimed three lives. The deaths occurred in each year of this study except 1979 and 1987. It is unknown whether or not the homes were equipped with smoke detectors (see Figure 8).

Violent Deaths

Homicide and suicide claimed 65 males and 11 females. The 15–24 and 25–44 age groups both had 33 deaths; 28 and 29 males, respectively, during the 11 year period of this study (see Figure 9). Of 77 violent

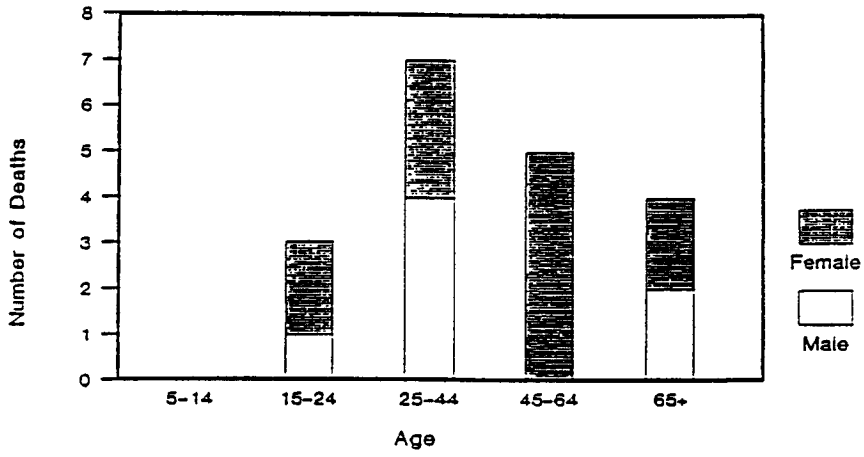

Figure 7
Hypothermia with ETOH—Tanana Chiefs Conference Region, 1977–1987.

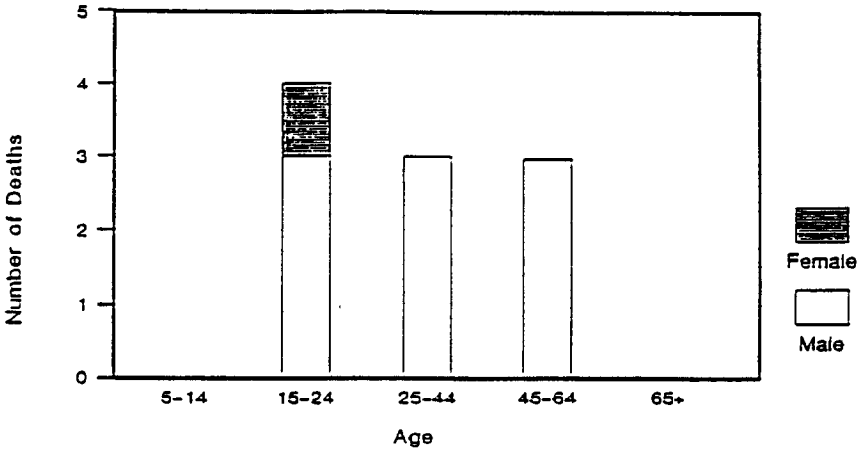

Figure 8
Fire-Related Deaths—Tanana Chiefs Conference Region, 1977–1987.

deaths, 36 were due to homicide, resulting in a rate of 71.7/100,000. The 25–44 age group is most at-risk (see Figure 10).

Forty violent deaths were the result of suicide. Contrary to the Alaska Native Health Board findings that 25–34 year old males remained the highest at-risk group throughout the 1970s, this study indicates that of sixteen suicides in that age group, only three occurred prior to 1980. The remaining thirteen suicides took place during the 1980s. The 15–24 age

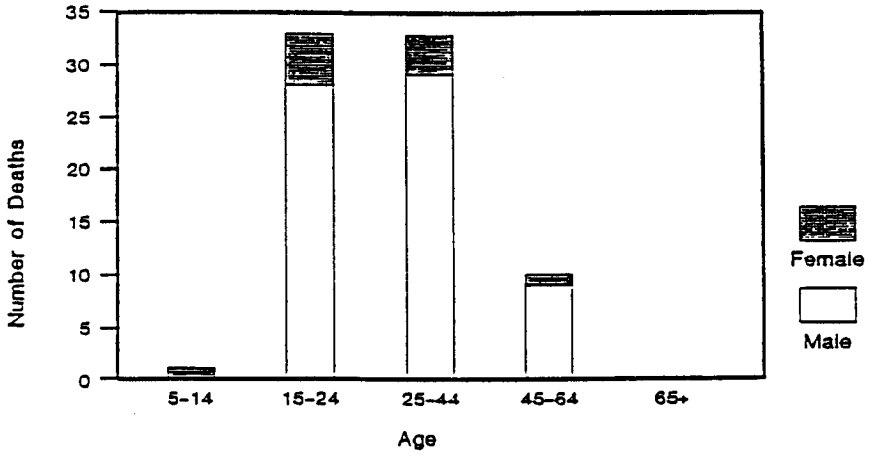

Figure 9
Violent Deaths—Tanana Chiefs Conference Region, 1977–1987.

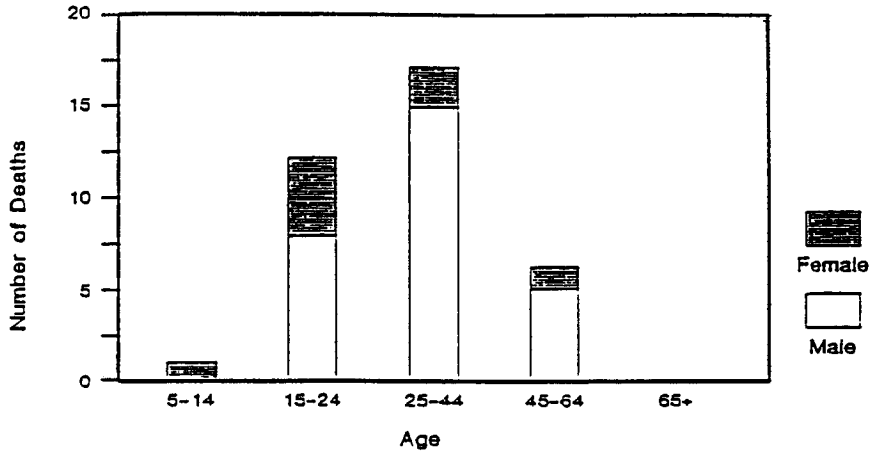

Figure 10
Homicide Deaths—Tanana Chiefs Conference Region, 1977–1987.

group has been the highest at-risk group during this study period resulting in a DOYON/TCC region suicide rate of 55.1/100,000 (see Figure 11).

A comparison of the violent and injury fatalities reveals that violent deaths are the leading cause of fatalities within the TCC region. Drowning is second, followed by unspecified and other, motor vehicle, hypothermia with ETOH and fire (see Figure 12).

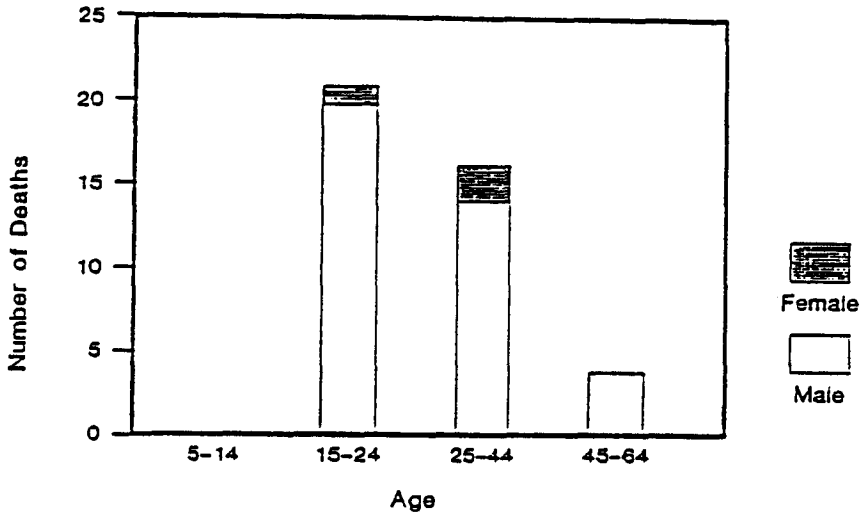

Figure 11
Suicides—Tanana Chiefs Conference Region, 1977–1987.

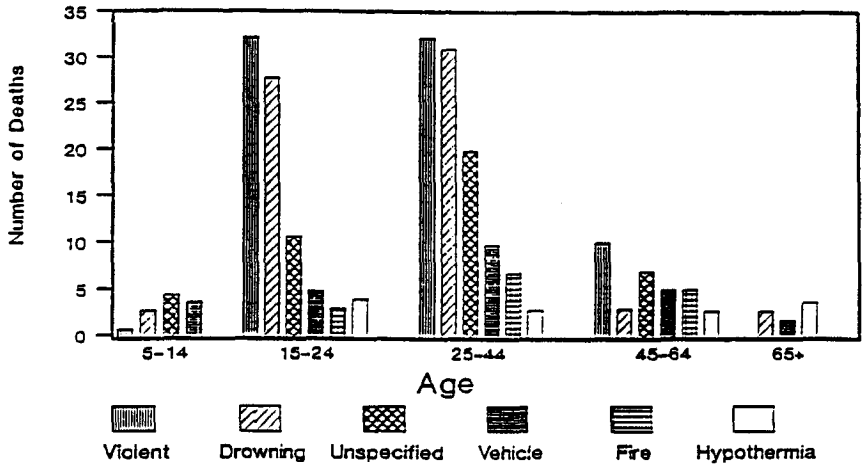

Figure 12
Violent and Injury Fatalities—Tanana Chiefs Conference Region, 1977–1987.

Unintentional injury, homicide and suicide death rates were compared for DOYON/TCC and American Indians. If one assumes similarities between the two in areas such as cultural beliefs and practices,

unemployment rates, poverty levels, educational achievement, and rural lifestyle, then it would seem likely that the rates would be comparable. That, however, is not the case. DOYON/TCC residents exhibit a higher mortality rate in all areas except the American Indian motor vehicle occupant rate. Interior villages are connected by rivers rather than roads. This transportation system is reflected in a very high drowning rate of 121.3 compared to the American Indian rate of 8.5/100,000, a factor of 14.27 to 1 (See Table 2).

Table 2
Death Rate by Category of Injury, 1977–1987 (per 100,000)

Category	DOYON/TCC	American Indian	Factor
Motor Vehicle			
Occupant	38.6	36.6	1.05:1
Pedestrian	5.5	12.9	0.43:1
Drowning	121.3	8.5	14.27:1
Fire	27.5	5.7	4.82:1
Falls	5.5	4.1	1.34:1
Excessive Cold	16.5	3.1	5.32:1
Firearm Accident	0.0	2.2	n/a
All Others	55.7	18.6	2.99:1
Total Unintentional	264.8	91.7	2.89:1
Suicide	55.1	13.0	4.24:1
Homicide	71.7	15.3	4.69:1

Sources:
American Indian data: Epidemiological Assessment of the Contributing Factors of Injury Mortality and Morbidity among American Indians. L.S. Robertson, Ph.D., Indian Health Service. p. 2, 1985.

DOYON/TCC data: Alaska Department of Health and Social Services. Vital Statistics. Computer print-out. 1977–1979. DOYON, Limited computer print-out.

In addition to comparing the TCC region to the American Indian population, a comparison of unintentional injury, suicide, and homicide was made between TCC and two other distinct Alaska Native regions, the NANA/Maniilaq region (Kotzebue and surrounding areas, composed of an Inupiat Eskimo population) and the North Slope Borough (an Inupiat Eskimo population north of the Brooks Range). Between 1979 and 1983 DOYON/TCC again exhibited the highest mortality rates for all categories except the NANA region's suicide rate of 76/100,000 (compared to the TCC rate of 46.34). (See Table 3).

Table 3
Causes of Death and Mortality Rates in Northern Alaska, 1979–1983
(Mortality rates per 100,000 population by residence of decedent)

CAUSE	DOYON/TCC	NANA/MANIILAQ	NORTH SLOPE
Unintentional Injury	241.68	186.20	165.34
Suicide	46.34	76.00	13.05
Homicide	62.90	3.80	43.51

Sources:
NANA/Maniilaq and North Slope data: Health Systems Plan for Northern Alaska 1985–1989. Table 50. Fairbanks, Alaska, p. 109, 1985.

DOYON/TCC data: Alaska Department of Health and Social Services. Vital statistics; computer printout. DOYON, Limited; computer print-out.

Trend Analysis plotting injury deaths reveals little change from year to year. Although a Community Injury Control program has been in effect throughout the period of this study, there has not been a reduction of injury-related fatalities. These data suggest that educational programs, such as TCC's, which do not incorporate environmental or legislative strategies are not effective for injury prevention. However, the trends are not conclusive and it is entirely possible that the rates could have been higher without the injury prevention program. It must also be noted that data to compute a trend line for the previous ten years (1967–1977) are not available (See Appendix B) and one cannot determine if there was an increase or decrease of injury deaths (see Figure 13).

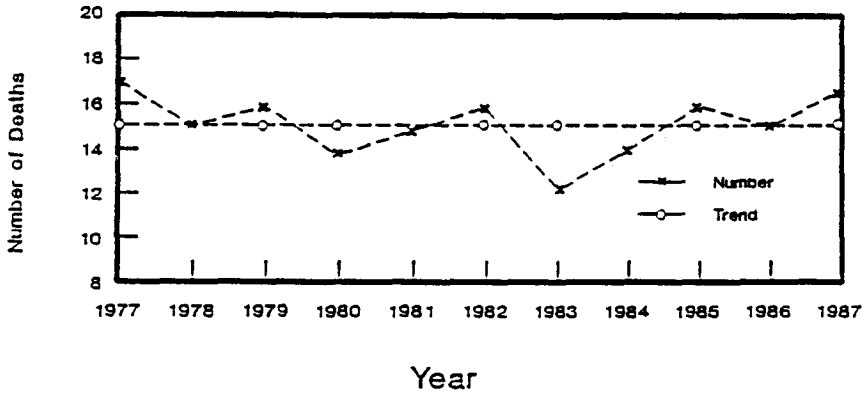

Figure 13
Trend Analysis—Unintentional Deaths TCC Region, 1977–1987.

A three year moving average of injury mortality rates was calculated to conform with an Alaska Area Native Health Service chart. The TCC region mortality rate exceeds the Alaska Native rate for each year presented. The region does follow the slight down-swing in accidental deaths from 1977–83, but shows an increase in 1987 which corresponds to the 1977 mortality rate of 281/100,000 (see Figure 14).

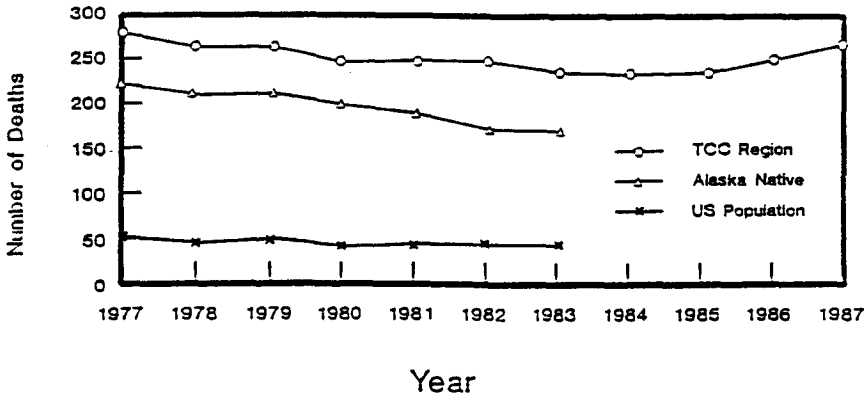

Figure 14
Accidental Deaths—Athabaskan vs Alaska Natives vs U.S. (Per 100,000 population).

Galena and Fort Yukon are the two largest villages within the DOYON/TCC region; 1,038 and 840 population, respectively. In 1980 Galena was 74.40% and Ft. Yukon was 75.40% Native. Galena is the sub-regional center for the following villages: Hughes, Huslia, Kaltag, Koyukuk, Nulato and Ruby. Eighty-four percent of the people in the sub-region are Native. A majority of the non-Native population are Air Force residents at the Galena base.

Ft. Yukon is the sub-regional Center for Arctic Village, Beaver, Birch Creek, Chalkyitsik, Circle, and Venetie. Natives comprise 82.89% of the sub-region's population (Tanana Chiefs Conference, 1988–1992).

Each village is located either on the Yukon River or one of its tributaries. In spite of the population and lifestyle similarities between the sub-regions, particularly the outlying villages, there is a marked difference between the two in drowning and violent deaths. The Galena sub-region had 27 drownings and 29 violent deaths whereas the Ft. Yukon area had 8 drownings and 9 violent deaths. Each of the seven villages in the Galena area experienced drowning and violent deaths; four of the Ft. Yukon area villages experienced neither a drowning nor a violent death during the period of this study. The reason for the disparity is unknown and further research is warranted (see Figure 15).

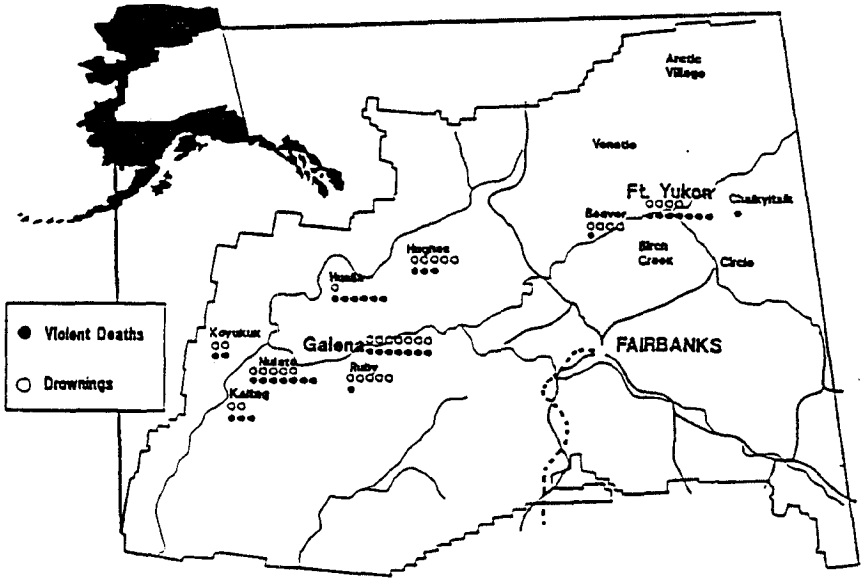

Figure 15
DOYON/TCC Region Map.

Recommendations

This study was undertaken in an attempt to reveal patterns of mortality within the DOYON/Tanana Chiefs Conference region. It was found that almost *one-half* of the TCC rural fatalities are due to *unintentional and intentional injury.* Drowning, motor vehicle crashes, hypothermia, fire, carbon monoxide poisoning and air transport crashes account for over 32% of the deaths; suicide and homicide account for over 15%. Many of these deaths are preventable.

Although there was a slight decrease in injury fatalities from 1977 to 1985 (followed by an increase to the former level), one cannot attribute it to the prevention efforts of the Community Injury Control program. There are no data to support a correlation between the program and the decrease.

A return to the 1977 mortality rate of 281/100,000 in 1987 could be the result of one incident which claimed seven lives. Generally, injury fatalities in the DOYON/TCC region occur in single-death incidents. This could also be an example of how multiple-death incidents have an effect on mortality rates for small populations.

As recommended by Robertson (1985), we need to know the details of circumstances surrounding injury fatalities to effectively design prevention strategies. An effective and reliable injury surveillance system would require working cooperatively with Community Health Aides, law

enforcement agencies, and local health clinics. Coordination between the agencies could be organized by one person who would then gather the injury-related data. This would ensure consistency of reports, in addition to providing the injury prevention program information with which to design prevention strategies. Directing injury prevention programs to implement environmental and legislative change strategies could bring concrete results.

The Indian Health Service's recent change from a poster contest to an injury prevention project contest for youth has resulted in positive prevention strategies for one village. Ft. Yukon youth identified a dangerous road area where three pedestrian deaths occurred. They worked cooperatively with city policy and the city manager to design a walkway which would separate the pedestrians from the roadway. As a result of the youth group's research, planning and intervention strategy, the city has built the walkway. Observations, during the author's visits to Ft. Yukon, reveal that the walkway is being used routinely by pedestrians.

On the basis of this successful intervention, it is hoped that other injury prevention programs will take an active role in working with village councils and residents to implement additional injury prevention strategies. A new direction for programs may involve promoting strategies which do not rely upon a voluntary change in behavior for success.

For example, one may want to explore the possibility of a BWI (boating while intoxicated) law. Although alcohol was not documented as a factor in the drowning deaths, the author was told that its use was a factor in many incidents. The Alaska legislature has shown a willingness to introduce bills which limit the effects of substance abuse in villages. It has stiffened penalties for bootlegging, and driving while intoxicated. Therefore, it might be beneficial to present the legislature with information on boating fatalities which would support enforcing boating regulations.

In addition, since fire-related deaths continue to be a problem, it would be beneficial to conduct a smoke detector survey in all DOYON/TCC villages. One could identify homes that do not have detectors, install them, and then maintain a register. The program could then determine the effect smoke detectors have in villages by keeping track of fires, smoke detector warnings, property damage, and fatalities.

Furthermore, although there are not many miles of road in the interior, motor vehicle-related deaths claimed 25 lives. We need to examine the facts surrounding the fatalities. Could the fatalities be reduced by installing street lights, cutting brush along the roads, installing stop signs, strict enforcement of a speed limit which does not exclude snow machines or all-terrain vehicles, use of reflective tape on winter clothing, and/or providing child safety seats?

In spite of the high usage of all-terrain vehicles and snow machines, helmet use is generally not practiced in rural areas. Additionally, although 3-wheelers may no longer be sold, there are numerous such

vehicles still in use in the villages. With the funds allocated for injury prevention, one may wish to examine the possibility of buying and removing the 3-wheelers from Alaskan villages.

This study has raised additional questions which need to be addressed. But it has also provided information for future injury prevention planning.

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Appendix A
Discrepancies noted during the comparison of data obtained from Alaska State Bureau of Vital Statistics and DOYON, Limited.

ICD Code	Description	Actual Cause
927	Overexertion	Drowning in the winter
985 (2 incidents)	Injury by firearm undetermined if accidental or purposeful	Suicide
922 (2 incidents)	Accident caused by firearm missile	Suicide
928 (2 incidents)	Unspecified environmental and accidental cause	Airplane crash and hit/run by snowmachine
532	Other cause	Snowmachine injury
983	Strangulation undetermined if accidental or purposeful	Homicide
799	Other	Homicide
345	Other	Hypothermia w/ETOH
305	Other	Hypothermia w/ETOH
0	Other	Hypothermia w/ETOH
819	Motor Vehicle	Drowning
0	Other	Drowning
0	Other	Suicide

Appendix B
Calculation: Trend Analysis—Unintentional deaths within the Tanana Chiefs Conference region for the period, 1977–1987.

Year	Deaths	Y Estimates	Regression Report	
1977	17	15.318181	Y Intercept (CO)	69.0
1978	15	15.290909	Std Y Est Error	1.0
1979	16	15.263636	R Squared [0..1]	0.0
1980	14	15.236363	Number of Samples	11.0
1981	15	15.209090	Degrees of Freedom	9.0
1982	16	15.181818		
1983	12	15.154545	X Coeffs (C1–0.02727)	
1984	14	15.127272	Std Coeff Er 0.147554	
1985	16	15.100000		
1986	15	15.072727		
1987	17	15.045454		

PSYCHOSOCIAL BARRIERS TO HEALTH PROMOTION IN AN AMERICAN INDIAN POPULATION

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Abstract: Northern Plains Indians (N = 200) completed the Indian Specific Health Risk Appraisal and measures assessing beliefs about risk factors and personal risk. Participants rated personal risk optimistically, judged their risk factor standing as superior to that of their peers, and neglected to consider risk factor standing when appraising personal risk. Moreover, participants were often not improving their standing on risk factors they considered relevant to their health. Such biases in health beliefs may prevent health interventions from being successful.

American Indians and Alaska Natives experience a disproportionate burden of morbidity preventable by lifestyle change for such health problems as atherosclerotic heart disease, chronic liver disease and vehicular trauma. The life expectancy at birth of American Indians is three years less than that of U.S. Whites. This burden is particularly alarming among Northern Plains Indians for whom the overall mortality rate is greater than that of other American Indians and is approximately twice that of all U.S. races ("Trends," 1991; Welty, in press).

Conventional public health strategies among American Indians have concentrated on disseminating information about causal relationships between health risk factors and disease, yet targeted risk behaviors often persist in spite of "successful" health education (Rhoades, Hammond, Welty, Handler, & Amler, 1987; Sullivan, 1990). Clearly, individuals must not only learn the facts, but also believe that they are personally at risk, before they will take steps towards changing their behaviors. Indeed, most health models such as the Health Belief Model and Protection Motivation Theory link perceptions of risk and health risk behavior (see Weinstein, 1993, for review). Eliminating preventable disease necessitates not only educating a population, but also breaking down psychosocial barriers that may impede individual improvement.

The Health Risk Appraisal (HRA), an instrument promoted by the Centers for Disease Control (CDC), has been administered in an Indian-specific version to thousands of American Indians (Welty, in press). The feedback of the HRA provides respondents with an estimate of personal health risk, along with suggestions for how to decrease this risk. However, numerous studies have shown the HRA to be an ineffective means of motivating lifestyle change (Nice & Woodruff, 1990; Schoenbach, 1987; Wagner, Beery, Schoenbach, & Graham, 1982). This investigation elaborates upon several elements that may contribute to the psychological appraisal of personal health risk among American Indians and may consequently undermine the effectiveness of the HRA and other educational strategies.

Our first hypothesis is that American Indians tend to underestimate their chances of experiencing health problems. In particular, we expected that American Indians would believe their risk to be objectively lower than that of their peers. Second, we also predicted that individuals perceive their own behavior as less risky than that of their peers. Third, we hypothesized that American Indians do not take their standing on risk factors into account when judging their risk. These three predictions were based in part upon previous research demonstrating that individuals in non-Indian populations tend to believe that their own health risk is objectively lower, and their standing on risk factors objectively better, than that of their peers (Klein & Kunda, 1993; Weinstein, 1984, 1987; Weinstein & Klein, 1995). Additionally, individuals often ignore their risk factor standing when judging risk (Weinstein, 1984, 1987). Determining how these biases may influence American Indian health perceptions and behaviors could help to identify reasons for the high prevalence of risk behaviors in this population.

Our final hypothesis is that even when American Indians do appreciate the significance of a particular risk factor, their behavior may not reflect this understanding. No studies to our knowledge have addressed this question directly. The notion that such individuals *do* know the risk factors associated with health problems is a novel one, and suggests that the HRA is ineffective because it is providing already known information without the tools to take action.

In sum, we conducted this study in order to develop a more theoretical understanding of why interventions such as the HRA are ineffective among American Indian and Alaska Native populations, by demonstrating the presence of psychological barriers impinging on the processing of risk information. This research is of particular importance because it concerns a group (Northern Plains American Indians) possessing an alarming risk of many health problems. It was predicted that participants would (a) appraise their health risks in an optimistically biased manner, believing their own risk to be lower than that of their same-age, same-sex peers, (b) consider their risk factor standing to be superior to that of their peers, (c) not take risk factor standing into account when judging their personal

health risk, and (d) not seem to be attempting to improve their standing on risk factors that they considered to be important and relevant to health risk.

Method

Sample

Questionnaires were collected from a sample of 200 urban dwelling Northern Plains Indians (120 women and 80 men) between the ages of 18 and 75. Ten additional participants were excluded because they were not American Indians. In addition to recruiting a sample that varied across all conventional demographic dimensions including age, sex, educational level, income, and occupational status, we took several additional steps to increase the representativeness of our sample. First, among those approached, approximately 75% consented to participate (and those who consented possessed a similar age and sex profile to those who refused). Second, based on past research showing Indian Health Service clinic users to be representative of their local American Indian populations (Goldberg et al., 1991), 160 of our participants were recruited in the outpatient clinic of an IHS hospital in the Northern Plains. Most of these were patients waiting for walk-in, appointment, or pharmacy visits. Everyone appearing at the clinic over a two-month period was approached for possible participation. Third, we buttressed the clinic sample by including relatives or friends accompanying patients as well as maintenance, medical records and security workers, and nurses. The findings reported were *not* affected by the inclusion of these additional clinic participants. Finally, we recruited 50 additional participants outside the clinic, a sample that included employees and visitors of several tribal offices throughout the city serving the American Indian community. Again, the findings were virtually identical whether or not this portion of the sample was included. Consequently, we report analyses conducted on the whole sample.

Procedure and Materials

Each participant was asked to complete a series of questionnaires. Informed consent was obtained, and participants were given the option of having their completed Health Risk Appraisal (HRA) placed in their medical records. Respondent anonymity and confidentiality were maintained in all other ways. Participants were compensated with a health promotion t-shirt.

Data were collected in a four-part instrument. The Indian-specific HRA, a form of the Carter Center instrument modified by the IHS in 1987, comprised Part I. The HRA surveyed respondents on forty health risk-related factors, such as exercise, smoking, alcohol consumption, and

family history of diabetes and breast cancer. Additionally, the HRA's protocol included measurement of blood pressure, height, weight, and random blood glucose and cholesterol levels. Blood was collected by the experimenter using a finger-stick technique, and analyzed for glucose and cholesterol levels by Accu-Chek II and ProAct machines, respectively. Participants were given the results immediately.

The remainder of the instrument consisted of questionnaires used to elaborate upon factors contributing to perceptions of health risk. Prior to the study, these questionnaires were pilot-tested for length and comprehensibility and were revised accordingly. Because these measures have been developed and used in other investigations, we do not rehearse their psychometric properties here.

In Part II, participants appraised their perceived risk of developing specific health problems (relative to the risk of same-age, same-sex American Indian peers in the same town) on a series of seven-point scales ranging from "much below average" (–3) to "much above average" (+3). This scale assesses bias in risk perceptions at the group level: empirically, if a predominant number of participants rate themselves as having a below-average risk, the sample as a whole can be said to be optimistically biased (e.g., Weinstein, 1984, 1987).

Participants estimated the prevalence of HRA-measured risk factors among peers of their own age and sex in Part III. For example, respondents were asked to estimate what percentage of Northern Plains Indians of their age and sex are smokers, and how many miles over the speed limit their peers usually drive. The scales on each question followed those used on the HRA (for those items on the HRA that had required participants to circle yes or no, participants were asked to estimate the percentage of Northern Plains Indians that would circle yes).

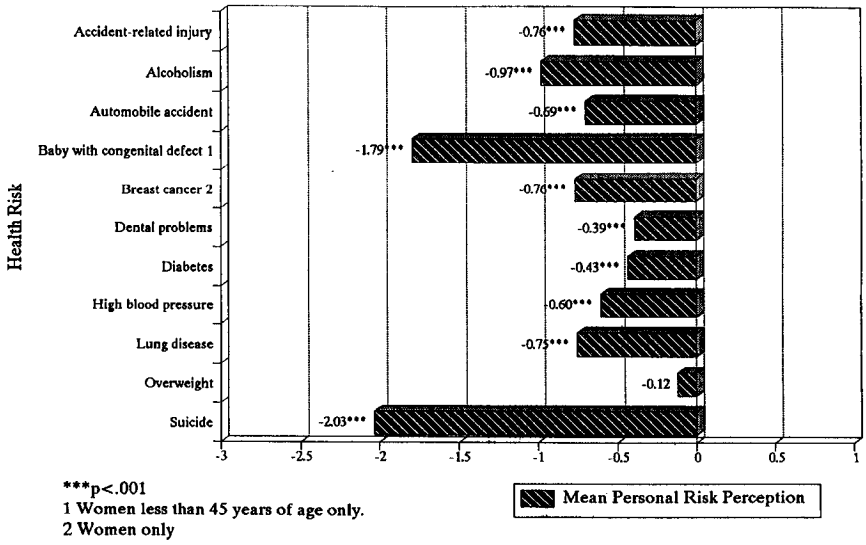
In Part IV, respondents indicated the extent to which some of the HRA health risk behaviors were related to health on five-point scales ranging from "not at all related" to "extremely related." Respondents also reported, on similar scales, how important it was to them to decrease or increase the frequency of these behaviors in their everyday life (depending upon whether the behavior was negative or positive, respectively).

As a service to the participants, all answers to the HRA were recorded on a scanner-ready form which was immediately entered into a portable computer and scored by the HRA Finding the Way program. A printout providing a personalized mortality risk, along with recommendations for reducing that risk, was returned and interpreted to the participant by an investigator after all four parts of the questionnaire were completed. Patients with serious health problems identified through the HRA were referred to their usual health care provider for follow-up.

Results

Perceptions of Future Personal Risk as Compared to That of Others

We first address the participants' responses on each of the comparative health risk scales (Part II). Recall that these scales ranged from "below average" to "above average," with a zero midpoint. As seen in Figure 1, the mean responses on each of these scales was significantly below zero (as assessed by one-sample *t*-tests at $p < .001$) for all but one health risk (overweight), demonstrating that participants as a group tended to see their risk as below average. This reflects an optimistic risk bias at the group level because such a disproportionate number of participants cannot be below average.



Note: More negative means reflect greater optimistic bias.

Figure 1
Mean ratings of personal health risks compared with estimates of peers' health risks.

Perceptions of Personal Standing on Risk Factors as Compared to That of Others

We next compared participants' responses on the HRA risk factors with their estimates of their peers' standing on these same risk factors (Part III). If there is no bias in participants' beliefs, the mean standing on each of the risk factors should equal participants' estimates of these means. However, as seen in Table 1, there was a tendency for

Table 1
Actual responses on HRA risk factors compared with respondents' estimates of average responses on these factors

HRA Risk Factor	Actual percentage or mean	Estimated percentage or mean	t[1]
Yes/No items			
Ever diagnosed with diabetes	15%	33%	6.50***
Have relatives with diabetes	50%	39%	2.82**[2]
Smoke cigarettes	55%	67%	2.90**
Smoke cigars or pipes	8%	24%	5.75****
Use smokeless tobacco	6%	31%	10.23****
Ride motorcycle	20%	13%	1.93
Ever seriously considered suicide	19%	19%	0.06
Items on Scales			
Thousands of miles traveled per year	16.04	14.77	0.34
Number of cigarettes smoked per day	12.82	14.38	1.64
Wear seat belt	2.36	1.55	6.94****
Drive over speed limit	1.40	1.84	7.13****
Times drive drunk or ride with drunk driver per month	1.19	12.42	9.51****
Times per month one drink or more	3.43	16.69	8.33****
Drinks per week	3.95	19.73	2.81**
Drinks at one time	3.56	10.55	7.98****
Times per month 5 drinks or more	1.68	3.16	17.21****
Physical exercise	2.20	2.02	2.89**
Brush/floss teeth	2.06	1.70	6.13****
Caffeine	2.26	2.60	4.93****
Women Only:			
Time since last mammogram	3.60	3.20	2.26*[2]
Relatives with breast cancer	1.24	1.77	5.88****
Time since last pap smear	1.86	2.43	4.35****
Examine breasts for lumps	2.17	1.62	6.34****
Time since breasts examined by doctor/nurse	1.82	2.82	7.03****
Number of preganancies	3.68	4.21	2.45*

*p<.05. **p<.01. ***p<.001. ****p<.0001.

[1] Degrees of freedom vary between 104 and 195 depending on applicability of risk factor and number of respondents

[2] Difference is significant in direction opposite to prediction. All others are in self-serving direction, regardless of the type of scale used.

respondents to exaggerate the difference between themselves and their peers in a self-serving manner. For example, based on self-reports, respondents consumed 3.95 drinks per week but estimated that their peers consumed 19.73 drinks per week. Such self-serving biases were found to be significant (by a series of paired *t*-tests) for 19 of 25 risk factors, most at $p < .01$ or better.

Correspondence Between Actual Standing on Risk Factors and Perceptions of Risk

The next question was whether participants rating themselves as low in risk would be those with the best standing on risk factors, while those rating themselves as high in risk would be those with the worst standing. We predicted that this would not hold true; in statistical terms, we predicted low correlations between participants' risk perceptions (Part II) and their actual standing on related risk factors measured on the HRA (Part I). As seen in Table 2, this prediction was confirmed. We found that

Table 2
Correlations of HRA risk factors with perceived health risks

Risks and HRA risk factors	Correlation with comparative risk judgment
Alcoholism	
Times per month one drink or more	+.11
Drinks per week	+.14*
Drinks at one time	+.19**
Times per month 5 drinks or more	+.18**
Baby with congenital defect (women only)	
Smoke cigarettes	−.09
Number of cigarettes smoked per day	−.05
Number of cigars smoked	−.03
Number of pipes smoked	—
Amount of smokeless tobacco	−.07
Number of pregnancies	+.01
Age at first pregnancy	+.12
Times per month one drink or more	+.06
Drinks per week	+.04
Drinks at one time	+.04
Times per month 5 drinks or more	+.03

Table 2 (Continued)
Correlations of HRA risk factors with perceived health risks

Risks and HRA risk factors	Correlation with comparative risk judgment
Being in traffic accident	
Thousands of miles traveled per year	+.08
Drive over speed limit	+.05
Times drive drunk or ride with drunk driver per month	+.06
Ride Motorcycle	+.01
Thousands of miles of motorcycle use	+.07
Being injured in traffic accident	
Wear seat belt	−.05
Breast cancer (women only)	
Relatives with breast cancer	+.04
Weight	+.04
Caffeine	+.04
Age at first pregnancy	−.06
Dental problems	
Brush/floss teeth	−.21**
Amount of smokeless tobacco	+.01
Diabetes	
Blood glucose	+.25***
Weight	+.21**
Relatives with diabetes	+.31***
Ever diagnosed with diabetes	+.36***
Physical exercise	−.12*
High blood pressure	
Blood pressure (diastolic)	+.23***
Blood pressure (systolic)	+.26***
Cholesterol	+.18**
Take medication for hypertension	−.31***
Smoke cigarettes	−.05
Number of cigarettes smoked	−.03
Number of cigars smoked	+.003
Number of pipes smoked	+.01
Amount of smokeless tobacco	−.14*
Times per month 1 drink or more	+.01

Table 2 (Continued)
Correlations of HRA risk factors with perceived health risks

Risks and HRA risk factors	Correlation with comparative risk judgment
High blood pressure (Continued)	
Drinks per week	+.05
Drinks at one time	+.04
Times per month 5 drinks or more	−.01
Caffeine	+.09
Weight	+.16*
Physical exercise	−.18**
Lung Cancer	
Smoke cigarettes	+.25***
Number of cigarettes smoked	+.20**
Number of cigars smoked	+.05
Number of pipes smoked	+.02
Amount of smokeless tobacco	−.14*
Obesity	
Weight	+.38***
Physical exercise	−.04
Suicide	
Ever seriously considered suicide	+.10

*$p<.05$. **$p<.01$. ***$p<.001$.

Note: A significant correlation indicates that respondents' risk factor standing on the HRA (e.g., smoking) was correlated with their perceived risk of having an associated health problem (e.g., lung cancer). Non-significant correlations indicate no perceived relationship between the risk factor and the health problem under which it is listed.

36 of 55 medically established and popularly known correlations between risk factors and health hazards were not significant in this sample. Thus, for example, respondents rating themselves low in risk for being in a traffic accident were no less likely to speed, drive drunk, or drive long distances than those rating themselves higher in risk. These findings suggest that respondents either do not appreciate the relationship between their risk factor standing and their personal health risk or are not applying this understanding to themselves.

An unexpected finding was that risk perceptions were more likely to be correlated with the physiological measures (weight, blood pressure, serum cholesterol and blood glucose), than with self-reported family history and behavioral measures.

Correspondence of Perceived Relevance and Importance of Risk Factors With Actual Standing

The final prediction was that those participants who acknowledged that a risk factor might be related to their health would be no more likely to report healthy behaviors than those who did not acknowledge the link. To test this prediction, we correlated participants' responses on HRA risk factors (Part I) with their ratings of how related these risk factors were to their health (Part IV). As seen in column 1 of Table 3, fewer than half of these correlations are significant, supporting our hypothesis.

Table 3
Correlations of HRA behaviors with perceived relevance of these behaviors to health and rated importance to self

HRA risk factor	Correlation with perceived relevance to health	Correlation with rated importance to self
Thousands of miles traveled per year	+.10	+.04
Wear seat belt	+.38***	+.44***
Drive over speed limit	−.07	−.20**
Physical exercise	+.21***	+.29***
Brush/floss teeth	+.37***	+.33***
Caffeine	−.04	−.16*
Weight	−.02	−.07
Smokers Only:		
Number of cigarettes smoked per day	+.04	−.05
Number of cigars smoked per day	+.16	+.20*[1]
Number of pipes smoked per day	−.08	−.13
Times used smokeless tobacco per day	−.18*	−.07
Alcohol Users Only:		
Drinks per week	−.11	−.28***
Times per month one drink or more	−.06	−.10
Times drive drunk or ride with drunk driver per month	−.13*	−.17**
Women Only:		
Time since last mammogram	−.22**	−.35***
Time since last pap smear	−.07	−.12
Examine breasts for lumps	+.38***	+.53***
Time since breasts examined by doctor/nurse	−.22**	−.23**

*$p<.05$. **$p<.01$. ***$p<.001$.

[1]This correlation implies that the more important it was to respondents NOT to smoke, the more cigars they smoked.

Similar analyses were conducted to determine whether respondents reported healthier behaviors on HRA items that were important to them. Correlations between HRA risk factors and importance ratings may be found in column 2 of Table 3. In this case, 10 of 18 correlations are significant, and tend to be stronger than the correlations in column 1. This implies that perceived relatedness and importance are not redundant constructs. Once again, however, there are several factors for which the correlation between rated importance and actual behavior was surprisingly low, suggesting that even when participants understood the relevance and importance of a risk factor, they were not necessarily more likely to be taking measures to improve their standing on that factor. For example, participants who felt it was important to smoke less, watch their weight, and get annual pap smears were no more likely to be taking these precautions than those who did not feel such precautions to be important.

Discussion

This study assessed some of the psychosocial factors underlying American Indian perceptions of their own health risks. Our findings show that our American Indian participants optimistically appraised their chances of evading preventable disease, magnified differences between their own standing on risk factors and the standing of their peers (thereby making themselves appear relatively lower in risk), often neglected to take their own standing on risk factors into account when appraising their overall risk of experiencing preventable illness, and still were no more likely to be taking steps to improve their standing on risk factors they considered important and relevant to their health. These biases may hinder the effectiveness of health interventions such as the HRA, and generally may act as barriers to behavioral change.

Our first two findings are consistent with research on non-Indians showing that people justify their lifestyles by perceiving their own behaviors to be more healthful than those of their peers. For example, people practicing AIDS-risk behaviors underestimate their risk of contracting HIV because they deem their own habits to be safer than those of their high-risk peers (Bauman & Siegel, 1987). Recent evidence suggests that social comparison plays an important role in judgments of risk (for review, see Klein & Weinstein, in press). In one study, for example, participants who imagined that their risk of experiencing a health problem was 60%, yet below the average risk of their peers, anticipated being less worried about this risk level than did participants asked to imagine that their risk was 30% but above average (Klein, in press).

Furthermore, when individuals are given social comparison information, it is often processed in a self-enhancing manner. Upon hearing that a similar other is HIV-positive, people may reduce perceptions of similarity to that individual (Gump & Kulik, 1995). Moreover, upon learning

that their own behavioral profiles compare unfavorably with those of others, they may discount the relevance of these behaviors to health problems (Klein, 1996). In some cases, social comparisons with others may even exacerbate risk biases (Weinstein & Klein, 1995). Consequently, it is essential to employ social comparison information very carefully when designing interventions. Currently, HRA feedback provides participants not only with a calculation of their own chances of developing a number of health problems, but also with the average risk of their peers. If respondents are engaging in self-enhancing strategies when receiving this information, the ineffectiveness of HRA as a behavior change tool may be more understandable. Recent research suggests that optimism biases are less likely to result when making comparisons with live, physically present individuals who are similar on several demographic attributes (e.g., Alicke, Klotz, Breitenbecher, Yurak, & Vredenburg, 1995), suggesting that using such targets would be more effective than providing statistical social comparison information.

Of course, these conclusions may hinge to a large degree on the population being studied. In cultures exhibiting an interdependent orientation, such as the Japanese, the tendency to see oneself as different (and better) than others is less prevalent (Heine & Lehman, 1995), suggesting that interventions inclusive of carefully selected social comparison targets may still be ineffective. The question of how much American Indians rely on social comparisons when judging their risk awaits further research.

Our third finding was that respondents rating themselves as low in risk to develop future health problems were no more or less likely than other respondents to exhibit healthy behavior. Interestingly, all physiological values, but very few self-reported behaviors, were highly correlated with associated health risks. For example, weight, current blood pressure, and cholesterol (all measured in the protocol) were significantly correlated with the perceived risk of having high blood pressure, but cigarette smoking, alcohol use, and caffeine consumption (all self-reported) were not. People's health risk perceptions may be more affected by their standing on their physiological as opposed to behavioral risk factors. Future research might consider explanations and implications of this finding.

Finally, even when participants acknowledged that a risk behavior was related to health, they still did not appear to be trying to improve their standing on that factor. For example, participants who indicated that cigarette smoking was related to health did not necessarily smoke less. Respondents' rated importance of avoiding health-threatening activities or engaging in health promotion behavior was also a poor predictor of actual health habits. These findings suggest that the provision of risk factor information such as that appearing on the HRA feedback form may not effect behavioral change because the information is already known, and knowledge alone does not necessarily lead to behavior change.

Indeed, two previous studies examining the psychological effects of health promotion through education have shown no impact on individuals' attitudes toward disease susceptibility, or their perceptions of the benefits of preventive action (Cioffi, 1979; Stiles, 1987). However, research has shown that people accurately retain information obtained from the HRA (Kellerman, Felts, & Chenier, 1992). The acquisition of health information during health promotion sessions may mask a failure to change: on follow-up surveys to the HRA, respondents have reported behavioral changes not substantiated by improvements in health status (Nice & Woodruff, 1990). Just because people remember the right answer does not mean that they adopt healthier lifestyles.

Because some of our results assume that our respondents were typical of the Northern Plains Indian community as a whole, we took several measures to increase our confidence in the representativeness of our sample. Our respondents were diverse in age, sex, educational background, employment status and in risk behaviors, yet characteristically similar to participants in other HRA screenings conducted during the same time period. Approximately 75% of those approached participated, and our analyses were not affected by the inclusion of non-patients and non-clinic users. Moreover, past research at other IHS sites has supported the generalizability of clinic samples such as ours (Goldberg et al., 1991).

The findings here illustrate the strategies that enable individuals to view their health positively—they can underestimate their future risk, perceive their risk factor standing as better than average, or ignore the relationship between their risk factor standing and their actual health risks. Furthermore, even when people do acknowledge the importance of a risk factor, they may not take steps to improve their standing on that factor. Effective interventions must take all of these factors into account if they are to be successful. If people are taught to appraise their objective risk more accurately, in a way that does not eliminate the psychological benefit of a positive outlook, they may engage in more healthful behaviors.

Of course, even if people do hold accurate health perceptions, it does not necessarily follow that their behavior will be consistent with these perceptions. In daily life, an individual must not only have the knowledge and the will (Carter, 1985), but also the *means* to achieve a healthy lifestyle. Greater than 60% of residents in one Northern Plains Indian reservation lived below the poverty level in 1989, creating the poorest county in the U.S. (Kilborn, 1992). American Indians overall have higher rates of unemployment, and receive less education and income, than all other Americans ("Trends," 1991). Consequently, such individuals may not have the necessary resources to effect behavioral changes. For example, if no other transportation is available or affordable, riding with intoxicated drivers may be inevitable (Oken, Lightdale, & Welty, 1995). More nutritious foods may also prove more expensive and unattainable. Providing a

sense of self-efficacy, as well as real power to effect personal change, is of utmost importance in any Indian health promotion program. Because of these realities, improving the HRA questionnaire and similar health education devices to minimize psychological barriers may not eliminate preventable illness, but does provide a workable first step.

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A SURVEY OF VOCATIONAL REHABILITATION COUNSELORS CONCERNING AMERICAN INDIAN AND ALASKA NATIVE CLIENTS WITH ALCOHOL AND OTHER DRUG ABUSE DISORDERS

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Abstract: Vocational rehabilitation (VR) counselors in states where many American Indians reside were questioned about the characteristics of their American Indian clients with alcoholism or drug abuse problems, and the kinds of services that were provided to them. A total of 124 counselors from 14 states responded to the survey. Twenty-seven of these respondents were employed in tribally operated VR projects in nine states.

Alcohol and substance abuse are often viewed as one of the most, if not the most, widespread and severe health problems among American Indians. These health problems contribute significantly to and greatly exacerbate almost every other of their most serious problems (Apodaca, 1984). As a group, American Indians also have a higher alcohol consumption than other ethnic groups or subgroups in the United States (Weisner, Weibel-Orlando, & Long, 1984). The extent of these problems has been reported in detail by many others (Kunitz & Levy, 1994; Vanderwagen, Mason, & Owan, 1986).

A major source of data on this problem is the Indian Health Service. May (1994) reported that an analysis of IHS data from 1986 to 1988 ". . . indicates that 17.0% to 19.0% of all Indian deaths are probably alcohol-related . . . [which is] substantially higher than the general U.S. average of 4.7%" (p.122). This is especially true for the young adults (age 15–34), for whom the death rate due to alcoholism (i.e., alcohol dependence, alcohol psychoses, and chronic liver disease and cirrhosis) is eight times that of the general population (May, 1994, Table 3). Another study showed that alcohol-related diagnoses (ARD) accounted for an overall estimated per annum rate of 13.7% of the adult inpatient days at 43 IHS facilities. IHS discharge rates for ARD over the period of study were three times greater than reported ARD discharge rates for the U.S. civilian population (Hisnanick & Erickson, 1993).

There may also be differences in alcohol metabolism between American Indians and other ethnic groups, though recent reviews of the literature do not support this hypothesis (May, 1989; 1994). Work on the genetics of alcohol metabolism, using different methodologies (e.g., Bower, 1991), have not yet been able to demonstrate any differences among ethnic groups and are concentrating instead on metabolic variations controlled by specific genes in alcoholics vs. nonalcoholics without regard to ethnicity. This work may eventually prove relevant, but the genetic link for alcoholism remains tentative.

In order to avoid the "drunken Indian" stereotype (May, 1989; 1994; Westermeyer, 1974), it is crucial to understand that American Indians are not a homogeneous group and that there are differences both within and between tribes in rates of alcoholism and substance abuse (Stratton, Zeiner, & Paredes, 1978; Young, 1988). Even if there are genetic factors involved, these may vary in frequency within and between groups as well as between Indians and non-Indians. For example, there is considerable variation between IHS areas in the frequency of Alcohol Dependence, Alcohol Psychosis, and Alcoholic Liver Damage diagnoses, from above 6% in the Aberdeen and Albuquerque areas to less than 2% in Oklahoma (Morgan, Hodge, & Weinmann, 1987). Wiesner, Weibel-Orlando, and Long (1984) provided evidence that there is an association between lifelong drinking styles and tribal origin. However, they find that the reasons for this association are complex and that the best predictors of drinking level are sex, age, the models of drinking behavior provided by the family of origin, and psychological stress. They point out that:

> Given the high rates of alcohol consumption and related sequelae in Indians as a group, it is often overlooked that substantial numbers of them do not drink at all or drink in moderation. How do these Indians differ from the heavier drinkers? We are not asking why one tribe drinks more than another or why Indians as a group drink more than non-Indians but rather what characterizes intratribal differences in drinking levels. (p. 237)

It is also true that a number of tribes have given special recognition to some of these problems among their members. For example, alcoholism has been identified by the Health and Human Services Committee of the Navajo Tribal Council as "the leading health problem" among Navajos (Morgan, Hodge, & Weinmann, 1987, p. 80). It has also been cited by the Alaska Native Health Board as "the most serious health hazard" facing Natives and non-Natives in rural Alaska (quoted in Morgan, Hodge, & Weinmann, 1987, p. 91).

Vocational Rehabilitation

Alcoholism poses a problem for the field of vocational rehabilitation (VR). The ratio of American Indians accepted into Rehabilitation Services Administration (RSA) caseloads for alcohol abuse during 1980–1982

was almost 19%, 3.34 times higher than for U.S. general population clients (Morgan, Hodge, & Weinmann, 1987). This does not include cases where alcoholism is considered a contributing, but not the primary disability.

The VR system recognizes alcoholism and substance abuse as disabilities (e.g., codes 520, 521). However, in the Rehabilitation Act, as amended in 1992, an important part of the definition of "individual with a disability" is that it excludes "any individual who is an alcoholic whose current use of alcohol prevents such individual from performing the duties of the job in question" (29 U.S.C. § 706(8)(C)(v), U.S.G.P.O. 1993). In other words, the only clients of this sort who might be eligible for VR services are abstinent alcoholics, and for those reasons find it difficult to get or keep a job. Elsewhere in the Act, specifically subparagraph (C) (ii), the following also are deemed ineligible: alcoholics or drug users for whom their substance abuse has been a substantial impediment to employment (e.g., they were fired from their last job for this reason) who are participating in or have successfully completed a supervised drug rehabilitation program, but have not yet been able to find employment.

Vocational rehabilitation counselors provide numerous services, but *treatment* for alcoholism or drug abuse is not among them. If a client needs such treatment, s/he must be referred to another program. This makes VR counseling different from other kinds of alcohol and rehabilitation counseling. However, VR counselors can provide support, encouragement, and other general counseling services. The main purpose of VR counseling is to determine the barrier(s) to a client's employment, to help the client deal with those barriers, and to assist the client in getting a job. If the barrier is the client's *present* alcoholism, and that is the client's only disability, the legislation appears to preclude his/her eligibility for VR services. If the client is receiving services for another disability and the VR counselor discovers that the client is abusing alcohol or drugs, VR services may be terminated, or suspended, or the client may be referred to an alcohol or drug treatment facility. Meanwhile, the VR counselor *can* support the client's recovery process. If the client has difficulty finding employment because of their *past* alcoholism, the VR counselor can support the client's efforts to maintain sobriety while helping them to find a job. But, again, the VR counselor may not provide "treatment" for alcoholism or drug abuse.

Alcoholism clearly constitutes a substantial barrier to employment. In 1986, a survey of the needs of 117 persons with disabilities living within the Pueblos of New Mexico was conducted by the Native American Research and Training Center, Northern Arizona University. Because of the sensitivity of issues relating to the use of alcohol, the questions had to be worded carefully (Martin & O'Connell, 1986, Appendix E). Nevertheless, the second most frequent reported disability (14%) was alcoholism. Alcoholism programs had been used by 29% of the respondents. Of these, 73% reported having used this resource during the past year. In

most cases (84%), this service was obtained on the reservation. Each respondent was asked to list what they were doing now to help with their disabilities. Ten (10) of the 117 respondents reported going to Alcoholics Anonymous meetings.

A survey of State VR and Blind Service agency administrators in the 27 states with the largest American Indian/Alaska Native populations was conducted in 1987. One of the questions asked (White, 1987) was:

> It is the legislative intent that "the State shall provide VR services to handicapped American Indians residing in the State to the same extent as the State provides such services to other significant segments of the population of individuals with handicaps residing in the State." Section 101(20). What problems or barriers do you foresee in accomplishing this? (p. 156)

Substance abuse was mentioned by all respondents as both a barrier to serving American Indians and as an obstacle to successful rehabilitation (White, 1987).

A multistate survey of 332 vocational rehabilitation counselors subsequently was conducted to assess rehabilitation counselors' perceptions related to working with American Indians with disabilities (Martin, Frank, Minkler, & Johnson, 1988). This survey reported that one-third of the counselors found chemical dependency among their clients was "seldom" to "almost never" manageable during the vocational rehabilitation process. The counselors were also asked to rank which agency personnel were the most important to work closely with in order to provide effective services to American Indian clients. From a list of 22 service providers, the category of chemical dependency counselors was ranked first, as the most important provider (summarized in Marshall, Martin, & Johnson, 1990). The results of this survey indicate the importance of alcohol abuse and dependence in rehabilitation (see also Young, 1986). Moreover, they point to a need for follow-up to provide more information about whether available rehabilitation services adequately meet the needs of these clients.

Methods

Design

The purpose of this study was to determine the perceptions of VR counselors who work with American Indians/Alaska Natives about the magnitude of alcoholism and substance abuse as a problem for their American Indian/Alaska Native clients; how seriously they think it affects rehabilitation outcome; and what, if anything, they think VR should do that can be done under current legislative mandates.

The target population was vocational rehabilitation counselors who work with American Indians or Alaska Natives suffering from alcoholism or

substance abuse as a diagnosed disability. Though national in scope, the study focused mainly on areas of high concentrations of American Indians and Alaska Natives. Data were collected via mail survey. The questions were grouped into six sections: (a) respondent characteristics, (b) special [cultural] issues, (c) caseload characteristics, (d) training background and needs, (e) treatment programs, and (f) aftercare or maintenance therapy. A variety of question types was employed, including open-ended responses, Likert-scaled responses, and various fixed-response formats.

Procedures

To develop the survey instrument, an advisory committee was established consisting of four American Indian VR counselors, four VR program directors, an RSA district program manager, and the superintendent of an American Indian school district who had a background in the treatment of alcoholism. Nine of these were American Indians/Alaska Natives. The authors and the American Indian Rehabilitation Research and Training Center director developed initial drafts of the questionnaire, which was then sent to advisory board members for review, corrections, and comments. The resulting questionnaire was then pilot-tested with four VR counselors (three in-state, one out-of-state). After discussion with these counselors, additional changes were made, and the questionnaire finalized.

Administrators of RSA and Section 130 tribal VR programs were contacted to enlist their support for the survey. If they agreed to participate, they were asked to name a liaison person who would identify appropriate VR counselors to send the survey to. With the assistance of the liaisons, about 300 questionnaires were distributed to VR counselors. In most cases, the liaison person identified only those counselors known to have American Indian or Alaska Native clients with alcoholism or substance abuse as a disability. In some cases, however, questionnaires were sent to a wider range of VR counselors. In these cases, the counselors were expected to decide whether or not they had worked with enough American Indians/Alaska Natives to respond. A cover letter asked them to respond if appropriate. Sometimes follow-up calls were made to the liaison person in order to expedite responses. Counselors were asked in the questionnaire if we could contact them with any follow-up questions. This proved valuable, as some responses were incomplete or unclear. All responses were voluntary, and no payments were made.

Completed questionnaires were entered into a database on an IBM PC using Symantec Corporation's "Q&A" software. The analysis was conducted using this software.

Results

A total of 124 VR counselors from 14 different states responded to the survey, a response rate of about 40%. These included 39 who were American Indians or Alaska Natives, representing about 20 different tribes. Fifty-three (53) of the counselors had more than 12 American Indians/Alaska Natives with alcoholism or substance abuse disabilities (primary, secondary, or tertiary) on their case load. Although it is impossible to be sure why 60% of those who were sent questionnaires did not respond, the most likely reasons were (a) they hadn't worked with enough American Indians or Alaska Natives who had alcoholism or substance abuse disabilities, (b) they didn't have time to complete the questionnaire, (c) some of the questions were too difficult, or (d) they thought their time was better spent working with clients rather than answering questionnaires. The biggest limitation of this data is that about half of the sample had worked with only a few (less than 10) American Indians or Alaska Natives who had alcoholism or substance abuse disabilities. Their inclusion reflects the reality that American Indians with alcoholism or drug abuse problems are often assigned to VR counselors who have little experience with this population.

Casework

Respondents were asked to rate aspects of their relationships with clients who have alcoholism/substance abuse problems. The ratings were on a Likert scale from 1 = Always to 5 = Never. Their responses are presented in Table 1.

Respondents were asked about the minimum amount of time they required that a client be detoxified or abstinent before beginning to implement VR services. Their responses are tabulated in Table 2. About one-third (34%) said there was no minimum period. Almost as many (29%) indicated one week to at least two months; virtually the same number (29%) indicated at least 3 to 6 months. Another 9% indicated that it would depend on various other factors.

Respondents were then asked what VR services their clients with alcoholism/substance abuse usually received for this disability while a client of their agency, and how these services were funded (Table 3). These services are standard categories used by VR counselors and defined by the Rehabilitation Services Administration pursuant to Title I of the Rehabilitation Act of 1973, as amended through 1992 (see 29 U.S.C. 723). The services most often received were Counseling and Guidance, and Assessment. Counseling and Guidance was the service most likely to be provided directly; Assessment was the most likely to be purchased, and Assessment and Restoration were the services most likely to be received as a similar benefit. "Similar benefits" are those benefits or services not

Table 1
Relationship With Clients

Item	Total n	Mean Rating	Mode	Standard Deviation
Honesty & directness	123	1.41	1 (Always)	0.66
Encourage client to be more responsible, productive and self-reliant	123	1.46	1 (Always)	0.71
Being a "sober" model, a "straight" authority figure	121	1.67	1 (Always)	1.01
Awareness of information & other services which can be useful to the client	123	1.70	2 (Usually)	0.67
Personal warmth & empathy, along with firmness	122	1.73	2 (Usually)	0.72
An evaluation of the client Communicating a reality-based, ordered	121	1.78	1 (Always)	0.88
disciplined & responsible way of life	120	1.81	1 (Always)	0.85
Ability to set limits	122	1.81	2 (Usually)	0.69
The ability to listen without judging	124	1.84	2 (Usually)	0.79
Ability to confront potentially destructive thinking or behavior	123	1.85	2 (Usually)	0.74
Educated & informed compassion & emotional support (without "enabling")	119	1.86	2 (Usually)	0.68
Awareness of choices that the client may not see	121	1.88	2 (Usually)	0.71
Time and availability	122	1.90	2 (Usually)	0.92
Interpreting evaluations of others for client	120	2.32	2 (Usually)	1.10
Family therapy	123	2.85	2 (Usually)	1.18
Native healing or diagnosis	117	3.84	5 (Never)	1.15

Table 2
Minimum Period of Sobriety Before Implementing Services

Minimum period	N	%
No minimum	40	34%
At least one week	2	2%
At least one month	21	18%
At least two months	10	9%
At least three months	23	20%
At least six months	10	9%
Depends	10	9%
TOTAL	116	

Table 3
VR Services

VR Service	Provided directly	Purchased	Similar benefit	Total
Counseling & Guidance	2.72	1.13	1.36	1.99
Assessment	2.14	1.92	1.72	1.93
Adjustment counseling	2.09	1.28	1.40	1.64
Job referral	2.03	1.32	1.29	1.63
Job placement	1.70	1.39	1.24	1.48
Transportation	1.49	1.32	1.	1.48
Restoration	0.87	1.23	1.77	1.34
Business/Vocational training	0.82	1.43	1.46	1.30
College/University	0.64	1.36	1.48	1.24
On-the-job training	1.02	1.26	1.40	1.23
Maintenance	1.34	0.86	1.38	1.20
Miscellaneous training	0.98	1.20	1.17	1.13
Independent Living	0.89	0.76	1.15	0.93

Response format employed the following alternatives:

3 = always; 2 = often; 1 = sometimes; 0 = never

administered by the VR Program for which VR clients are eligible and which are either available from sources other than the VR Program, or are similar to, or the same, as VR Program services. These are services which would be provided by the VR Program if not otherwise available. Responses were scored on a three-point scale from "Always" (3) to "Never" (0). Table 3 depicts the mean response in each cell.

Training Background and Needs

Most (85%) of the respondents had training in alcohol or substance abuse counseling, but one-third (38, 31% of the total) wanted more training. The areas of training of greatest interest were, in order of descending importance:

1. Legal issues relating to the disability status of American Indian/ Alaska Natives who have problems with alcoholism/substance abuse, under the Rehabilitation Act of 1973 as amended (77%).
2. Use of supportive services in IWRP development to improve chances for successful rehabilitation (65%).

3. Learn how to identify and counsel clients who have functional limitations affecting employment, with alcoholism/substance abuse as a secondary or "hidden" disability (64%).

4. Evaluate whether or not their applicant or client can benefit from treatment programs in their area (58%).

The most popular media for reviewing such information were workshops (81%) and videotapes (52%). Other media considered useful were newsletters (31%), manuals (28%), brochures (22%), and audiotapes (14%).

Treatment Modalities

Most VR counselors (101, 81%) thought that treatment modalities for American Indians and Alaska Natives who abuse alcohol and other substances sometimes need to be different from treatment modalities for other clients. The most highly rated treatment models are indicated in Table 4. All were rated either excellent or good by most of the respondents who had some knowledge of these treatment modalities. (Ratings were based on a four point scale ranging from A = excellent = 4 to D = Poor = 1). However, the two most highly rated treatment modalities were much less well-known than AA/NA, which was mentioned by 94 (76%) of the counselors, compared with 65 (52%) who were able to rate 28-day

Table 4
Rating of Treatment Models

Treatment Model	Total n	Other*	Mean rating	Mode	St. Dev.
Native American traditional healing	37	34	2.84	3 (Good)	.82
28-day Hazelden/Minnesota/AA	65	20	2.82	3 (Good)	.76
Outpatient: AA/NA	94	8	2.77	3 (Good)	.76
Residential therapy program	53	21	2.72	3 (Good)	.79
Native American Church	28	37	2.64	3 (Good)	.81
Spiritual or religious programs	46	23	2.61	2 (Fair)	.82
Outpatient employee assist. prog.	43	30	2.54	3 (Good)	.82
Psychiatric/Psychological models	66	12	2.49	3 (Good)	.72
Behavioral approaches	34	33	2.47	2 (Fair)	.92
Outpatient drug-free program	57	21	2.46	2 (Fair)	.68
Outpatient:Methadone	40	31	1.98	2 (Fair)	.88

*Some mark (e.g., a comment) other than a rating was written.

Table 5
Elements of Treatment

Elements of Treatment	Total	Other*	Mean rating	St. Dev.
Encouraging responsibility	98	14	3.051	.84
Individual sessions	96	18	3.000	.75
New support networks	90	22	2.856	.89
Group sessions	91	21	2.824	.87
Support regarding relationships	94	19	2.819	.81
Suggesting healthier choices	98	15	2.806	.83
Confrontation	94	19	2.766	.82
Drug education	94	19	2.745	.89
Family counseling	90	23	2.744	.94
Encouragement regarding feelings	99	14	2.737	.89
Promotion of abstinence	98	15	2.735	.95

*Some mark other than a rating was written.

Hazelden or Minnesota model inpatient treatment programs and 37 (30%) who were able to rate Native American traditional healing methods. The lowest rating was given to Methadone maintenance programs, which were rated fair to poor by 73% of the counselors who had some experience with them.

VR counselors were then asked to rate 11 elements of treatment for American Indians and Alaska Natives who had alcoholism or substance abuse disabilities (see Table 5). The rating scale was based on A = Excellent = 4, B = Good = 3, C = Fair = 2, D = Poor = 1. An "X" was used rather than a rating if "you didn't know, or have no experience with a particular element of treatment." These responses are recorded in the "other" column. This question likely reflects the perceived value of such elements clients might receive in an alcoholism or drug abuse treatment center, rather than the counselors' own work with clients. However, some counselors may have interpreted the question in terms of their own counseling experiences with clients. In either case, it is likely that clients receive multiple elements of treatment. The counselors were not asked about multiple forms of intervention or combinations of elements of treatment.

Most counselors (n = 85, 69%) indicated that there was a program within a 100 mile radius of their office that is specifically designed to serve the needs of American Indians and Alaska Natives who have alcoholism or substance abuse as a disability, but less than half (44%) were satisfied with these programs. Nevertheless, when asked if they knew of a "good" treatment program for these clients, the names and addresses of about 50 treatment programs were offered, although few were mentioned by more than one respondent.

Aftercare

When asked what aftercare programs were most important in helping a client maintain sobriety and/or abstinence, the most common answer was Alcoholics Anonymous (n = 34), which received a "good" rating (mean = 2.77, max = 4.00). However, there was a wide variety of responses to this open-ended question.

Discussion

A diverse sample of 124 VR counselors from 14 states responded to the survey. About one-third were American Indians, representing 20 different tribes. Fifty-three (53) of the counselors had more than 12 American Indians/Alaska Natives with alcoholism or substance abuse disabilities (primary, secondary, or tertiary) on their case load. In their relationship with these clients (Table 1), the dominant attitude of these counselors was "honesty and directness." The primary methods of dealing with these clients, given their history of addictive behavior, was to "encourage client to be more responsible, productive and self reliant," and "being a 'sober' model, a 'straight' authority figure." However, "using family therapy", or "Native healing or diagnosis", ranked lowest among the 16 aspects of counseling which they were asked about.

These counselors were also asked to rate eleven (11) treatment elements (see Table 5). All received favorable ratings, and had been used by at least 72% of the counselors. The highest rating was given to "encouraging responsibility," consistent with their relationship with their clients. Individual sessions were rated more highly than group sessions, but not by much ($t[178] = 1.48$, $p = 0.14$). In general, differences in mean ratings were small. More significant is that all treatment elements received favorable ratings, on the average, by those who had used them. Conversely, treatment elements were not rated by a significant number of counselors (20–30%)—either because they hadn't used them, or because they felt they could not rate them for some reason. This *may* indicate a need by some counselors for training in these areas.

Respondents were asked to what extent "family therapy or counseling" characterized their relationship with their clients, and also about family counseling as an element of treatment. The relatively low rankings may suggest that counselors need to know more about the benefits of family counseling for such clients. However, it may also be that alcoholic family members are regarded as part of the problem, and a case beyond the scope of the counselor's duties, especially if the family member is in denial about his/her drinking problem.

When asked about the minimum amount of time they required that a client be detoxified or abstinent before beginning to implement VR services, about a third said they require no minimum amount of time. The time periods required showed a multi-modal distribution, with 20% requiring at

least three months, and 18% requiring at least one month. About 9% of the counselors responded that the minimum time they would require "depends" on other factors. Given that federal legislation appears to require that potential VR clients need to be at least in treatment, if not abstinent, before being eligible for VR services, this finding is evidence of a high degree of variation in practice. Perhaps for this reason, the greatest interest in additional training was with respect to legal issues relating to the disability status of American Indians and Alaska Natives who have problems with alcoholism or substance abuse, under the Rehabilitation Act of 1973, as amended.

VR Services

Results summarized in Table 3 suggest that American Indians/Alaska Natives with alcoholism/substance abuse disabilities may not be receiving all of the support services they need. For example, maintenance services tend to be provided only "sometimes," whereas the odds of rehabilitation might be substantially improved if these services were provided "often." On-the-job training also seems underutilized. In addition, some funding options appear to be underutilized. For example, college/university training and business/vocational training are rarely "provided directly."

From the viewpoint of rehabilitation counselors, the question is often one of how best to use scarce service dollars. The reality is that for most, their performance will be evaluated on the basis of how many cases they successfully close. This sometimes means that clients whose recovery from drug or alcohol abuse has not stabilized may be seen as less likely to benefit from VR services than other clients. Consequently, VR agencies are loathe to serve such clients. However, if it can be shown that certain ways of providing services to these clients result in the same chance of successful closure as other clients, then more American Indian clients with alcohol or drug abuse problems could benefit from VR services.

Treatment Modalities

Most (81%) of the VR counselors thought that treatment modalities for American Indians and Alaska Natives who abuse alcohol or other substances sometimes need to be different from treatment modalities for other clients. But VR counselors cannot themselves provide treatment for alcoholism or drug abuse. Instead, if the VR client is not already in treatment, the VR counselor can refer a client for treatment elsewhere. Thus, the list of VR services provided in Table 3 does *not* include alcoholism or drug treatment modalities. The most highly rated treatment modality was familiar to less than one-third of the counselors: Native American traditional healing (30% of counselors). Thus, a major need is to make sure

VR counselors who work with American Indians suffering from alcohol or drug abuse disorders are aware of American Indian/ Alaska Native traditional healing programs in their area. The second most highly rated treatment modality was that provided by the 28 day Hazelden or Minnesota model inpatient treatment program (52% of counselors). The AA/NA program, really a support group rather than a "treatment" program, was the most widely familiar (76% of counselors); it received the third best rating.

Such differences in familiarity may be primarily due to availability: as a grass-roots support group, AA/NA requires a minimum of expense, and is available wherever at least two confessing drug abusers wish to meet. Consequently, AA or NA groups exist in virtually every community. The Hazelden or Minnesota model inpatient program, however, requires facilities, staff, funding, etc., so are fewer in number and not always close at hand. Even less well known are programs based on Native traditional healing. They are probably less well known because they do not advertise themselves or the methods used in ways likely to come to the attention of VR counselors. This points to a need for better information about what "traditional healing" means for American Indians and Alaska Natives who have problems with alcohol or drug abuse, and where such options are located, admission and eligibility requirements, etc. Furthermore, this information needs to be packaged in a form useful for VR counselors.

Conclusions

Although the available literature on the vocational rehabilitation of American Indians who have alcohol or drug abuse as a disability is not extensive, it is clear that counselors are very sensitive to the importance of this issue, but often feel ill-equipped to deal with it. Furthermore, except for Alcoholics Anonymous, they have little idea of where to turn for help. Alcoholics Anonymous is cited more often because it is well known than because of evidence of its effectiveness with this special population. AA is not a treatment program, but a support group whose principle of anonymity limits its usefulness as a treatment program. For example, there are no records kept which a counselor can obtain to certify treatment—or even attendance. Some counselors try to compensate for this by asking their client to identify their AA sponsor, and then solicit progress updates from the sponsor. However, this practice violates the AA principle of anonymity. Although there are hundreds of treatment centers for American Indians, little research has been conducted which identifies successful approaches to treatment of American Indians in a way which meets scientific standards.

This survey is consistent with Guyette's (1982) finding that a majority of the treatment population preferred a combination of Native healing practices and Western treatment strategies. That is, although there was widespread support for the AA model, the highest-rated (but

less well-known) treatment model was Native traditional healing. In addition, most counselors thought that treatment modalities for American Indians/Alaska Natives who had alcoholism and other substance abuse problems sometimes need to be different from treatment modalities for other clients. This is similar to Duran's approach (1990), and to Weibel-Orlando's (1989) "Syncretic Model," in which:

> Indian values and ceremonial curing practices are incorporated into standard alcoholism intervention strategies. Western treatment programs such as Alcoholics Anonymous are stressed although certain structural or substantive changes may be made so as to make the meetings "more Indian." Non-Indian treatment strategies are employed in conjunction with traditional Indian spiritual guests, curing rituals, and reidentification with one's tribal origins and beliefs (Weibel-Orlando, 1989, p. 134).

Finally, the state of the vocational rehabilitation of American Indians for alcoholism or drug abuse problems is revealed in the kind of training counselors desire. Although most respondents had training in alcohol or substance abuse counseling, one-third of them (n = 38, 31% of the total) wanted more. Conversely, about two-thirds of them were either satisfied with the training they had, or were not optimistic that additional training would help. In view of the notorious difficulty of vocational rehabilitation with these clients (documented in the introduction), the latter seems more likely. The extent to which counselor frustration and cynicism constitute barriers to rehabilitation has not been resolved and deserves further inquiry.

Recommendations

As a result of these considerations, a number of recommendations can be based on the results and the discussion:

1. *Design training workshops in areas of expressed interest.* Workshops could be videotaped for further distribution, since a majority of respondents indicated some interest in this training medium. In addition to the four areas of training identified previously, the following might be offered: (a) effective utilization of maintenance and on-the-job training services for the VR of American Indians/Alaska Natives with alcoholism/substance abuse, and (b) relevance and value of college and university training and business and vocational training to American Indians/Alaska Natives recovering from alcoholism/substance abuse.
2. *Identify and publish information about exemplary treatment programs of the "Syncretic" type.* This type of treatment program was identified in an earlier study of urban treatment programs as the type preferred by urban clients (Guyette, 1982). It also fits the profile

of treatment programs that the respondents in the present survey rank most highly.

3. *Alternatives to the requirement for three months' abstinence before implementing VR services are needed.* Too often this requirement screens out applicants who seek help. Legal issues can be a factor here, but as long as the applicant is *in recovery*, he or she can receive services. No 90-day waiting period is required. Counselors may need guidance on how to deal with this issue. When embarking on abstinence, an applicant needs support and reinforcement. Support in the form of career counseling, family healing therapy, etc., can motivate the client to remain abstinent and to prepare him or her for success with other VR services.

4. *VR counselors with expertise should be given specialty caseload responsibilities.* That is, counselors with special training, knowledge, and interest in substance abuse and knowledge of how to work with American Indian/Alaska Native clients should be encouraged to specialize in working with American Indians/Alaska Natives with alcoholism/substance abuse. The underlying cultural, psychological, social, and economic factors require special expertise that is usually needed for dealing with these clients.

Future Research

Much remains to be done with the data collected for this paper. For example, does counselor caseload experience, or ethnicity, influence the results? We intend to examine these and other issues with the present data.

Using the treatment centers identified by counselors in this survey as exemplary for the treatment of American Indians and Alaska Natives, we have conducted a follow-up survey of these treatment centers, and are preparing a report on the results. The purpose of this survey was to try to identify factors which promote success in treatment. Also, since so many treatment centers describe their methodology as "based on" AA, we hope to reveal what that means.

Lastly, we have sent a follow-up survey to the same counselors, focusing on counselor/client interaction. The purpose of this survey is to identify barriers in counselor-client interaction, and to explore ways to improve the interaction to promote successful and cost-effective rehabilitation.

Finally, a methodological analysis of alcoholism treatment approaches (Hester & Miller, 1995), published after this study was conducted, has suggested that a radical rethinking of conventional treatment is needed. They found that ". . . a number of treatment methods were consistently supported by controlled scientific research. On the other hand,

we were dismayed to realize that virtually none of these treatment methods was in common use within alcohol treatment programs in the United States." However, ". . . there is no single treatment approach for alcohol problems that is superior to all the others" (p. xi). Furthermore, "without a single exception, the studies failed to show any advantage for the more intensive, longer, or residential approaches over less intensive and less expensive alternatives" (p. xii). The success of AA modalities, partly as a consequence of anonymity factors, cannot be effectively evaluated at this time because of the lack of adequately controlled trials (Miller et al., 1995, p. 31). The most successful treatment methods, as measured by their "cumulative evidence scores," were (Miller et al., 1995, p. 18):

1. Behavioral Intervention
2. Social Skills Training
3. Motivational Enhancement
4. Community Reinforcement Approach
5. Behavior Contracting.

However, these ratings were for treatment methods in general, and not specifically for American Indians. Future studies should investigate the use and effectiveness of these methods with American indians, along with finding a way to evaluate the effectiveness of AA, or its various elements ("steps").

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